LÜTGERT

ANTRIEBSELEMENTE

# 3-part shrink discs

TAS SCHÄFER

If performance is required

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# Description of function

## Three part shrink disc of the types TAS 30.. & TAS 52..

The main function of a shrink disc is the safe connection of a shaft with a hub by means of friction. For example, between a drive shaft and a transmission hollow shaft. The shrink disc generates a backlash-free connection by pressing the hub onto the shaft. This connection is mainly used to transmit torque.

The shrink disc only provides the required forces, and transfers no forces or moments between shaft and hub by itself. Therefore, the force flow does not pass through it.

It is installed by sliding the shrink disc onto the hollow shaft and the subsequent tightening of the screws. By using conical surfaces the inner diameter reduces and the radial pressure is built up. The 30xx range of shrink discs are not self-locking. The clamping forces are provided and controlled through the screws.

This allows the direct compensation of the clearance between the shaft and hub, without an overload that may occur on path controlled shrink discs, due to small or over sized clearance.

The supplied shrink discs are ready for installation.

To achieve proper operation with a sufficiently high coefficient of friction, the contact surfaces between shaft and hub must be dry, clean and free of grease. The functional surfaces of the shrink disc, the thread and head rests of the screws, are equipped at the factory with lubricant. Molykote G-Rapid Plus or comparable must be used as a lubricant. The contact surfaces between the hub and inner ring must be provided with grease or oil before installation.

### Product data

A detailed installation manual is available on our Homepage.

**Data sheets**

- Contact us if a data sheet for an individual product is required.

We provide CAD data for our products in various formats please contact us:

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or

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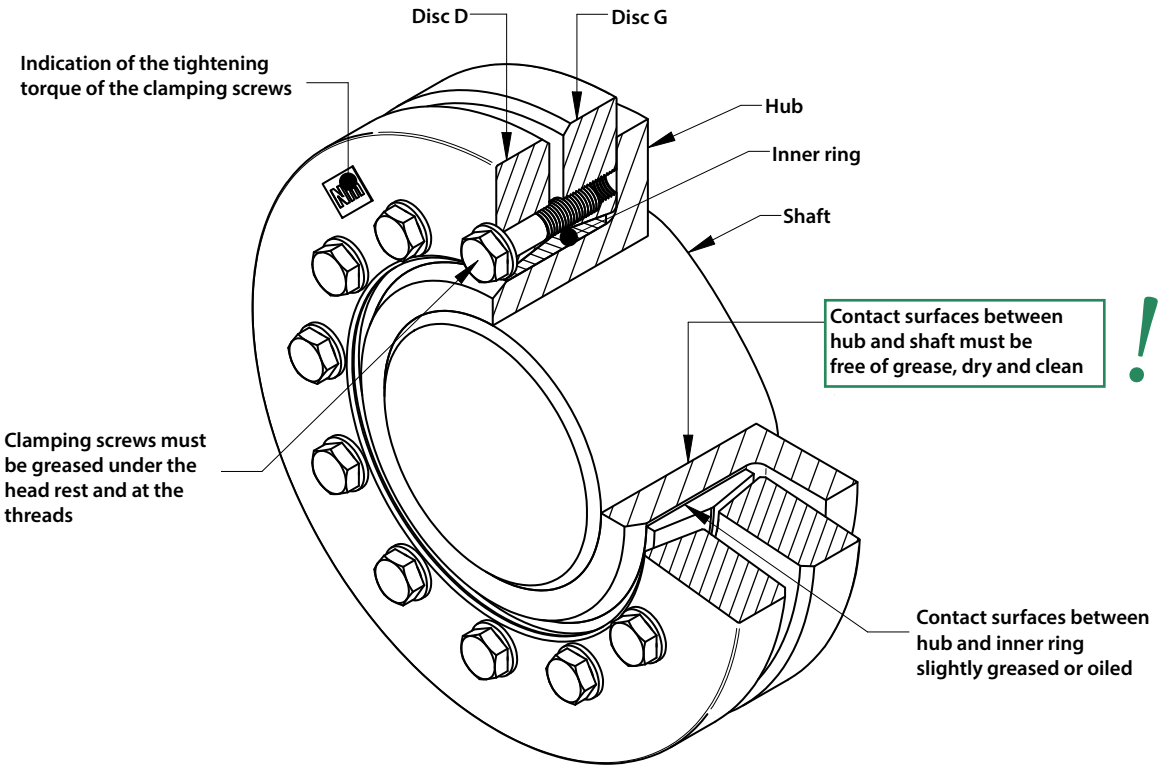


# Basics - Design

### Clamping length for shrink discs

The clamping length l of the shrink disk at the junction $l_K$ (between shaft and hub), should be chosen to be somewhat wider to minimize the stress concentration at this point. An excessively wide connection increases the tendency to fretting corrosion, because the pressure decreases outward. The pressure is distributed approximately at an angle between 15° - 20° through the hub. This is largely dependent on the hub wall thickness and stiffness of the shaft. A good approximation can be made from the following equation:

Clamping length of the contact area:

$$l_K = 0{,}316\,(d - d_w) + l$$

The cylindrical surfaces should be located symmetrically under the shrink disc! With a slightly different clamping length the transmissible torque M will not change, because a smaller contact surface results in a higher pressure - also a larger contact surface causes lower pressure.

### Tightening torque of the clamping screws

The given tightening torque values in the tables for the screws are based on a friction coefficient $\mu_{ges}$ = 0,1. In principle, the specified tightening torque $M_A$ can be reduced to $M_{Agew}$ to reduce stresses in the components. This may be necessary for soft materials and bored shafts. The reduction of $M_A$ also reduced the pressure $p_N$ and transmissible torque M. The ratio is approximately proportional and can be calculated according to:

$$M_{(new)} = \frac{M_{Agew}}{M_A}\,M \quad \text{also} \quad p_{N(new)} = \frac{M_{Agew}}{M_A}\,p_N$$

The tightening torques can not be reduced arbitrary, therefore apply the following limits:

$$M_{Agew} \geq \left| \begin{array}{l} \text{Class } 8.8 : 0{,}85\ M_A \\ \text{Class } 10.9 : 0{,}70\ M_A \\ \text{Class } 12.9 : 0{,}60\ M_A \end{array} \right| \leq M_A$$

A further reduction requires additional screw locks!

### Tolerances and surfaces

The values found in the product data based on surface quality and tolerances according to the table below. These values are given as recommendations.

Higher values for the surface roughness reduces the transmissible torque and promote unwanted settling. Larger clearance also reduces the transmissible torque and heightened tensions in the hub.

**In the case of significantly different values, please contact us!**

Tolerance for the outer diameter hub - f7!

**Recommended tolerances and surface roughness**

| > | ≤ | $FS_{max}$ mm | Clea Hub/Shaft | Rz µm |
|---|---|---|---|---|
| 9 | 18 | 0,022 | H6/h6 | 10 |
| 18 | 30 | 0,026 | H6/h6 | 10 |
| 30 | 50 | 0,032 | H6/h6 | 10 |
| 50 | 80 | 0,049 | H7/h6 | 10 |
| 80 | 120 | 0,057 | H7/h6 | 16 |
| 120 | 150 | 0,065 | H7/h6 | 16 |
| 150 | 180 | 0,079 | H7/g6 | 16 |
| 180 | 250 | 0,090 | H7/g6 | 16 |
| 250 | 315 | 0,101 | H7/g6 | 16 |
| 315 | 400 | 0,111 | H7/g6 | 16 |
| 400 | 500 | 0,123 | H7/g6 | 25 |
| 500 | 630 | 0,136 | H7/g6 | 25 |
| 630 | 800 | 0,154 | H7/g6 | 25 |
| 800 | 1000 | 0,172 | H7/g6 | 25 |

# Basic - Calculation

**The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:**

### Transmissible torque

A shrink disc connection is capable of transmitting torque, bending moment and axial force. Alternatively, the transmissible torque $M_{max}$ is specified in the product data. If such loads occur simultaneously then they must be added vectorially to the resultant moment $M_{res}$.

**The formula below applies to the resulting moment:**

$$M_{res} \leq M_{max}$$

At different load cases, these are individually checked against $M_{max}$ !

**$M_{res}$ is determined for combined loads as follows:**

$$M_{res} = \sqrt{M_T^2 + 2M_B^2 + (F_{AX} \frac{dW}{2})^2}$$

with $M_B \leq 0{,}3\ M_{max}$
*as the limit* for the the bending moment*

*In principle, the maximum bending moment corresponds to the maximum transmittable torque. The limitation to 0,3 $M_{max}$ is due to the change of the surface pressure at the edges of the connection. (see also „Bending moment“)

**This results in the following relationships:**

**Torque only:**
The maximum torque is equivalent to $M_{max}$ .

**Bending moment only:**
The maximum bending moment corresponds to 0,3 $M_{max}$ .

**Axial force only:**
The maximum axial force is $M_{max} \frac{2}{d_w}$ .

**A different equation applies for very small shrink discs (3073):**

$$M_B \leq 0{,}2\ M_{max}$$

Depending on the application, additional safety factors need to be considered for the individual loads!

### Calculation of transmissible torques and forces

The catalogue data relates to specific shaft diameters which we recommend using. If the shaft diameter is between two sizes, the larger shrink disc should be selected. A deviation is possible within certain limits but the predetermined tolerances and surface roughness should be considered.

The shaft diameter and transmissible torque behave approximately proportional to each other. The transmissible torque increases with greater shaft diameter and vice versa. In contrast, the transmissible axial force changes only slightly. This is not due to the shaft diameter but because of the change in stiffness of the hub when the inner diameter changes.

Within certain limits, the changes can be linearly approximated. Information about the range of the respective shaft diameter can be found in the product data. The determination of the deviating values is explained below. Please contact us if the shaft diameter must be outside the indicated range. The formula below calculates the torque for specific shaft diameters:

$$M = M_{max\,(Catalog)} \left( \frac{d_{W\,(target)}}{d_{W\,(Catalog)}} \right)^2$$

The corresponding axial force which is transmitted instead of the torque, results as follows:

$$F_{ax} = M \frac{2}{d_{W\,(table)}}$$

### Radial force

Radial forces cause a change in pressure at the contact surface. In the force direction, the pressure increases on the one side and is reduced accordingly on the other side. This depends on the amount of radial force and the rigidity of the parts.

The following equation can be used to approximate the pressure change:

$$\Delta p_W = 0{,}75 \frac{F_{AX}}{d_W\ l_K}$$

The modified pressures $pW_{min,\,max}$ results from the following equation:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The minimum pressure $p_{W_{min}}$ should be at least 50 N/mm² to avoid gap corrosion. In addition, the material must be designed for a maximum pressure $p_{W_{max}}$ .

# Basics - Calculation

**The calculation of the values, given in the catalogue, are based on the following assumptions and simplifications:**

### Bending moment

Here the situation is similar to the radial forces. However the pressure is greatest at the ends of the connection in this case. Again, the amount and stiffness are important. This leads to the following approximation:

$$\Delta p_W = 4{,}5 \frac{M_B}{d_W l_K^2}$$

As before, the modified pressures results from:

$$p_{W_{min,\,max}} = p_W \pm \Delta p_W$$

The conditions for minimum and maximum pressure are the same as before. It should be noted that there could be a change in pressure due to radial force!

### Shaft and hub calculation

The catalogue contains information on the generated surface pressure for each shrink disc. The hub will be deformed due to the applied radial force. In addition to the clearance between shaft and hub, shaft stiffness and surface finish should be concidered. For solid shafts the flexibility can be ignored, but with hollow shafts (see „Bore in the shaft (hollow shaft)“) there is greater deformation and thus greater stresses in the components. This must be considered in addition to other loads.

The stresses in the hub can be determined by various hypotheses, such as GEH. We will not make a presentation and analyse results at this point because we would only be able to cover a very limited range of static applications. Various calculation methods for different cases can be found in engineering literature or using specialiced software. However, for complex geometry often only a calculation by FEM gives reliable results.

The information on the minimum yield strength of shafts and hubs are suggested recommendations, based on typical values for such applications. They are provided as guidelines and are not a replacement for a proper calculation for a given application!

### Notch effect

Generally there is a notch effect on the components, caused by the radial pressure of the shrink disc. This depends mainly on the applied pressure. The notch effect is generally higher on the hub than on the shaft, because here the inner ring of the shrink disc is directly pressed onto the hub, while the stresses are distributed through the hub before reaching the shaft. The notch factors range from 2,5 to 3,5 for the hub and it is between 1,5 and 2 for the shaft. This can be mitigated by suitable design features, such as relief notches.

Some standards provide the possibility of a notch factor to be determined by a fit pairing for a shrink-connection. A similar method also can be used for a shrink disc connection. To this end an oversize can be calculated from the applied surface pressures. As a result, a matching fit pair can be determine and thus a resultant notch factor found.

### Bore in the shaft (hollow shaft)

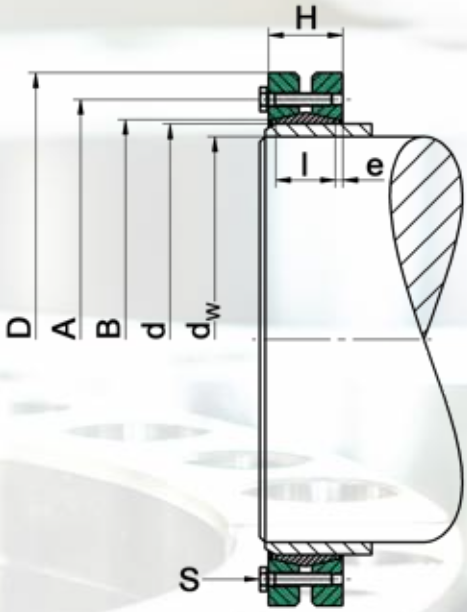
A large bore dB in the shaft or the use of a hollow shaft, reduces the stiffness of this component against radial pressure. This leads to a decrease in pressure pW , a reduced transmissible torque M, a contraction ΔdB within the shaft and an increase of stresses in these components. Basically, a bore should not be greater than 0,3 dW .

# shrink disc 3-part

To provide the shrink discs with optimal protection against environmental influences, they can be treated using the processes of galvanizing, nickel plating or painting with a corresponding corrosion protection class. We realize color requests according to the RAL color spectrum and products with lubricants in accordance with NSF H1.

| *shrink disc* | *Installation length* | *Shaft diameter [mm]* | *Transmittable torque [kNm]* | *Torque capacity* |
|---|---|---|---|---|
| 3073 | Very small | 18 -340 | 0,08 -52 | Very low torques |
| 3051 | Small | 100 -560 | 11,9 -1.759 | Low torques |
| 3071 | Medium | 11 -820 | 0,03 -10.562 | Medium torques |
| 3081 | Medium | 11 -820 | 0,05 – 12.541 | High torques |
| 3091 | Large | 30 -540 | 0,89 – 4.116 | Very high torques |
| 3093 | Large | 30 -540 | 1 – 4.897 | Maximum torques |
| Typ 52 | Medium | 40 - 170 | 1,2 - 149 | Medium torques |

# 3073 Mini-Range



## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average Pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the shrink disc

- Discs galvanized
- without washers
- Dimensions H & e in unlocked position

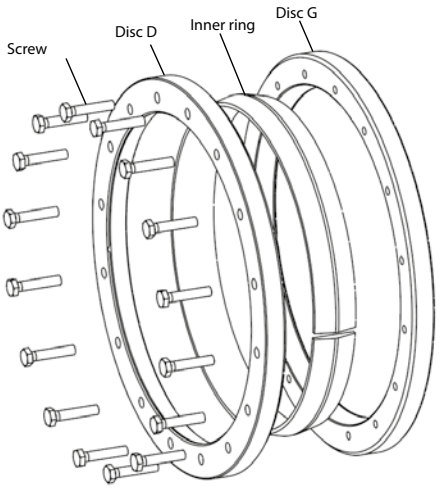
| min. yield strength Rp0,2 | N/mm² |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 20 | 60 | -2 | 1 |
| 60 | 100 | -2 | 2 |
| 100 | 160 | -3 | 2 |
| 160 | 220 | -4 | 2 |
| 220 | 300 | -5 | 2 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

*(see Basics - Calculation)*



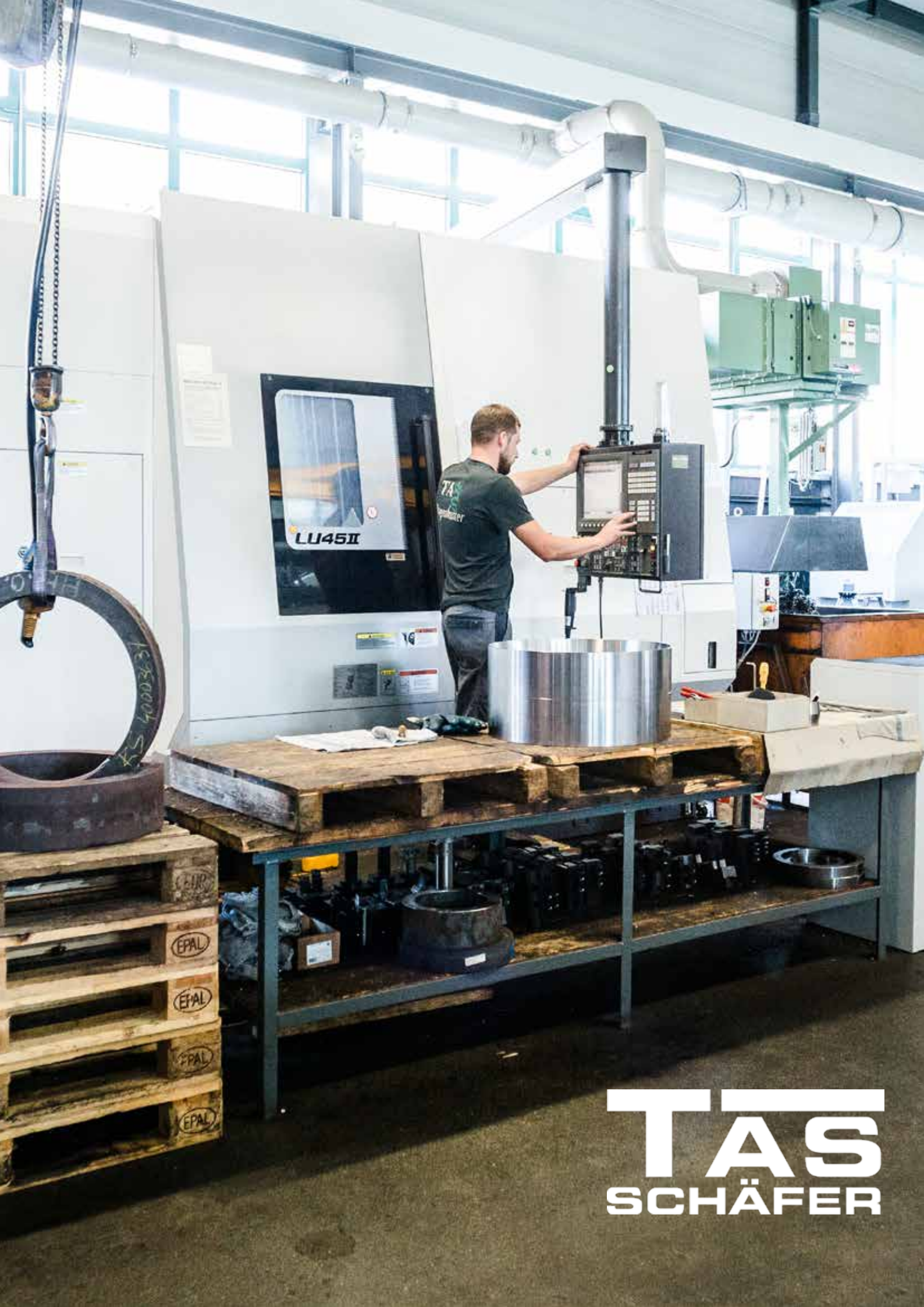

**Ordering information: TAS 3073-d** (Further sizes on request)

# 3073 Mini-Range

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **20** | 18 | 78 | 47 | 10 | 2 | 14 | 34 | 22 | 3 | 4 | M 5 x 14 | 933 | 8.8 | 12100 | 155 | 0,0000424 | 0,13 |
| **24** | 20 | 80 | 52 | 10 | 2,5 | 15 | 39,5 | 26 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 11000 | 161 | 0,0000697 | 0,17 |
| **25** | 21 | 88 | 56 | 10 | 2,5 | 15 | 43 | 30 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 10200 | 155 | 0,0000940 | 0,20 |
| **28** | 24 | 110 | 56 | 10 | 2,5 | 15 | 43 | 30 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 10200 | 138 | 0,0000931 | 0,19 |
| **29** | 25 | 110 | 58 | 10 | 2,5 | 15 | 44,5 | 31,5 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 9800 | 133 | 0,0001051 | 0,20 |
| **30** | 26 | 120 | 58 | 10 | 2,5 | 15 | 44,5 | 31,5 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 9800 | 129 | 0,0001066 | 0,20 |
| **31** | 28 | 160 | 60 | 10 | 2,5 | 15 | 46 | 33 | 3 | 5 | M 5 x 14 | 933 | 8.8 | 9500 | 125 | 0,0001197 | 0,21 |
| **35** | 30 | 180 | 64 | 10 | 2,5 | 15 | 50 | 36,5 | 3 | 6 | M 5 x 14 | 933 | 8.8 | 8900 | 133 | 0,0001530 | 0,23 |
| **36** | 31 | 170 | 66 | 10 | 2,5 | 15 | 52 | 38,5 | 3 | 6 | M 5 x 14 | 933 | 8.8 | 8600 | 129 | 0,0001766 | 0,25 |
| **37** | 32 | 180 | 66 | 10 | 2,5 | 15 | 52 | 38,5 | 3 | 6 | M 5 x 14 | 933 | 8.8 | 8600 | 125 | 0,0001718 | 0,24 |
| **38** | 33 | 290 | 68 | 10 | 2,5 | 15 | 55 | 41,5 | 4 | 6 | M 5 x 14 | 933 | 8.8 | 8400 | 163 | 0,0001972 | 0,26 |
| **40** | 35 | 310 | 68 | 10 | 2,5 | 15 | 55 | 41,5 | 4 | 6 | M 5 x 14 | 933 | 8.8 | 8400 | 155 | 0,0001867 | 0,24 |
| **42** | 37 | 370 | 75 | 14 | 2,5 | 19 | 58 | 44 | 4 | 7 | M 5 x 16 | 933 | 8.8 | 7600 | 123 | 0,0003510 | 0,38 |
| **46** | 40 | 460 | 80 | 14 | 2,5 | 19 | 63 | 49 | 4 | 8 | M 5 x 16 | 933 | 8.8 | 7100 | 128 | 0,0004471 | 0,42 |
| **47** | 42 | 530 | 80 | 14 | 2,5 | 19 | 63 | 49 | 4 | 8 | M 5 x 16 | 933 | 8.8 | 7100 | 125 | 0,0004412 | 0,41 |
| **48** | 43 | 550 | 86 | 14 | 2,5 | 19 | 68,5 | 53,5 | 4 | 8 | M 5 x 16 | 933 | 8.8 | 6600 | 123 | 0,0006062 | 0,50 |
| **51** | 45 | 550 | 86 | 14 | 2,5 | 19 | 68,5 | 53,5 | 4 | 8 | M 5 x 16 | 933 | 8.8 | 6600 | 115 | 0,0005873 | 0,47 |
| **55** | 49 | 710 | 91 | 14 | 2,5 | 19 | 73 | 59 | 4 | 9 | M 5 x 16 | 933 | 8.8 | 6200 | 120 | 0,0007349 | 0,52 |
| **56** | 50 | 730 | 91 | 14 | 2,5 | 19 | 73 | 59 | 4 | 9 | M 5 x 16 | 933 | 8.8 | 6200 | 118 | 0,0007278 | 0,51 |
| **58** | 52 | 710 | 93 | 14 | 2,5 | 19 | 74 | 60 | 4 | 9 | M 5 x 16 | 933 | 8.8 | 6100 | 114 | 0,0007808 | 0,52 |
| **59** | 53 | 840 | 96 | 14 | 2,5 | 19 | 77 | 63 | 4 | 10 | M 5 x 16 | 933 | 8.8 | 5900 | 125 | 0,0009047 | 0,57 |
| **60** | 54 | 860 | 96 | 14 | 2,5 | 19 | 77 | 63 | 4 | 10 | M 5 x 16 | 933 | 8.8 | 5900 | 123 | 0,0008811 | 0,55 |
| **61** | 55 | 880 | 96 | 14 | 2,5 | 19 | 77 | 63 | 4 | 10 | M 5 x 16 | 933 | 8.8 | 5900 | 121 | 0,0008732 | 0,54 |
| **65** | 59 | 970 | 100 | 14 | 2,5 | 19 | 82 | 68 | 4 | 10 | M 5 x 16 | 933 | 8.8 | 5700 | 113 | 0,0010135 | 0,57 |
| **66** | 60 | 990 | 100 | 14 | 2,5 | 19 | 82 | 68 | 4 | 10 | M 5 x 16 | 933 | 8.8 | 5700 | 112 | 0,0010049 | 0,56 |
| **69** | 63 | 1500 | 105 | 18 | 3 | 24 | 87 | 73 | 6 | 10 | M 5 x 20 | 933 | 10.9 | 5400 | 117 | 0,0015194 | 0,77 |
| **70** | 65 | 1600 | 110 | 18 | 3 | 24 | 90 | 76 | 6 | 10 | M 5 x 20 | 933 | 10.9 | 5200 | 115 | 0,0018912 | 0,89 |
| **72** | 67 | 1600 | 110 | 18 | 3 | 24 | 90 | 76 | 6 | 10 | M 5 x 20 | 933 | 10.9 | 5200 | 112 | 0,0018364 | 0,85 |
| **73** | 68 | 1700 | 110 | 18 | 3 | 24 | 90 | 76 | 6 | 10 | M 5 x 20 | 933 | 10.9 | 5200 | 110 | 0,0018300 | 0,84 |
| **75** | 70 | 1700 | 114 | 18 | 3 | 24 | 93 | 78,5 | 6 | 10 | M 5 x 20 | 933 | 10.9 | 5000 | 107 | 0,0021181 | 0,91 |
| **78** | 70 | 1900 | 120 | 18 | 3 | 24 | 101 | 86 | 6 | 12 | M 5 x 20 | 933 | 10.9 | 4700 | 124 | 0,0025605 | 1,0 |
| **81** | 73 | 2000 | 120 | 18 | 3 | 24 | 101 | 86 | 6 | 12 | M 5 x 20 | 933 | 10.9 | 4700 | 119 | 0,0026201 | 1,0 |
| **83** | 75 | 2100 | 120 | 18 | 3 | 24 | 101 | 86 | 6 | 12 | M 5 x 20 | 933 | 10.9 | 4700 | 116 | 0,0024748 | 0,93 |
| **85** | 77 | 2400 | 128 | 22 | 3 | 28 | 105 | 88,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4400 | 103 | 0,0038365 | 1,3 |
| **88** | 80 | 2500 | 130 | 22 | 3 | 28 | 108 | 91,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4400 | 99 | 0,0040046 | 1,3 |
| **94** | 85 | 2500 | 140 | 22 | 3 | 28 | 119 | 102,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4000 | 93 | 0,0053318 | 1,5 |
| **95** | 86 | 2500 | 140 | 22 | 3 | 28 | 119 | 102,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4000 | 92 | 0,0053672 | 1,5 |
| **98** | 90 | 2800 | 140 | 22 | 3 | 28 | 119 | 102,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4000 | 89 | 0,0051107 | 1,4 |
| **99** | 91 | 2800 | 140 | 22 | 3 | 28 | 119 | 102,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4000 | 88 | 0,0051452 | 1,4 |
| **100** | 92 | 2900 | 140 | 22 | 3 | 28 | 119 | 102,5 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 4000 | 87 | 0,0051800 | 1,4 |
| **103** | 95 | 3400 | 150 | 22 | 3 | 28 | 128 | 111,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3800 | 95 | 0,0070357 | 1,7 |
| **104** | 96 | 3500 | 150 | 22 | 3 | 28 | 128 | 111,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3800 | 95 | 0,0070796 | 1,7 |
| **105** | 97 | 3500 | 150 | 22 | 3 | 28 | 128 | 111,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3800 | 94 | 0,0067050 | 1,6 |
| **108** | 100 | 3700 | 150 | 22 | 3 | 28 | 128 | 111,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3800 | 91 | 0,0064058 | 1,5 |
| **112** | 104 | 3800 | 158 | 22 | 3 | 28 | 135 | 118,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3600 | 88 | 0,0084393 | 1,8 |

# 3073 Mini-Range

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **115** | 107 | 4000 | 158 | 22 | 3 | 28 | 135 | 118,5 | 12 | 9 | M 6 x 25 | 933 | 10.9 | 3600 | 85 | 0,0081152 | 1,7 |
| **120** | 110 | 4300 | 164 | 25 | 3,5 | 32 | 141 | 123,5 | 12 | 10 | M 6 x 25 | 933 | 10.9 | 3400 | 80 | 0,0103240 | 2,0 |
| **125** | 115 | 4600 | 169 | 25 | 3,5 | 32 | 146 | 128,5 | 12 | 10 | M 6 x 25 | 933 | 10.9 | 3300 | 77 | 0,0115988 | 2,1 |
| **130** | 120 | 6000 | 179 | 25 | 3,5 | 32 | 156 | 138,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 3200 | 89 | 0,0146823 | 2,4 |
| **135** | 125 | 6200 | 179 | 25 | 3,5 | 32 | 156 | 138,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 3200 | 85 | 0,0138232 | 2,2 |
| **138** | 128 | 6400 | 182 | 25 | 3,5 | 32 | 161 | 143,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 3100 | 84 | 0,0149983 | 2,3 |
| **140** | 130 | 6500 | 182 | 25 | 3,5 | 32 | 161 | 143,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 3100 | 82 | 0,0144991 | 2,2 |
| **145** | 135 | 6800 | 194 | 25 | 3,5 | 32 | 171 | 153,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 2900 | 80 | 0,0197981 | 2,7 |
| **150** | 140 | 7100 | 194 | 25 | 3,5 | 32 | 171 | 153,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 2900 | 77 | 0,0180408 | 2,4 |
| **160** | 150 | 7700 | 204 | 25 | 3,5 | 32 | 181 | 163,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 2800 | 72 | 0,0218452 | 2,6 |
| **166** | 156 | 7900 | 210 | 25 | 3,5 | 32 | 187 | 169,5 | 12 | 12 | M 6 x 25 | 933 | 10.9 | 2700 | 69 | 0,0241839 | 2,7 |
| **167** | 157 | 9500 | 214 | 25 | 3,5 | 32 | 191 | 173,5 | 12 | 14 | M 6 x 25 | 933 | 10.9 | 2600 | 81 | 0,0267108 | 2,9 |
| **170** | 160 | 9700 | 214 | 25 | 3,5 | 32 | 191 | 173,5 | 12 | 14 | M 6 x 25 | 933 | 10.9 | 2600 | 79 | 0,0252099 | 2,7 |
| **173** | 163 | 9900 | 220 | 25 | 3,5 | 32 | 196 | 178,5 | 12 | 14 | M 6 x 25 | 933 | 10.9 | 2600 | 78 | 0,0293734 | 3,0 |
| **175** | 165 | 10100 | 220 | 25 | 3,5 | 32 | 196 | 178,5 | 12 | 14 | M 6 x 25 | 933 | 10.9 | 2600 | 77 | 0,0286466 | 2,9 |
| **180** | 170 | 10400 | 225 | 25 | 3,5 | 32 | 201 | 183,5 | 12 | 14 | M 6 x 25 | 933 | 10.9 | 2500 | 75 | 0,0300966 | 2,9 |
| **185** | 175 | 11600 | 230 | 25 | 3,5 | 32 | 206 | 188,5 | 12 | 15 | M 6 x 25 | 933 | 10.9 | 2400 | 78 | 0,0326719 | 3,0 |
| **192** | 180 | 11500 | 240 | 28 | 3,5 | 35 | 220 | 200,5 | 12 | 15 | M 6 x 30 | 933 | 10.9 | 2300 | 67 | 0,0436896 | 3,7 |
| **195** | 183 | 11600 | 240 | 28 | 3,5 | 35 | 220 | 200,5 | 12 | 15 | M 6 x 30 | 933 | 10.9 | 2300 | 66 | 0,0418359 | 3,5 |
| **198** | 186 | 12700 | 250 | 28 | 3,5 | 35 | 225 | 206 | 12 | 16 | M 6 x 30 | 933 | 10.9 | 2200 | 69 | 0,0533946 | 4,2 |
| **202** | 190 | 13100 | 250 | 28 | 3,5 | 35 | 225 | 206 | 12 | 16 | M 6 x 30 | 933 | 10.9 | 2200 | 68 | 0,0503607 | 3,9 |
| **212** | 200 | 13900 | 260 | 28 | 3,5 | 35 | 235 | 216 | 12 | 16 | M 6 x 30 | 933 | 10.9 | 2200 | 65 | 0,0576788 | 4,1 |
| **214** | 202 | 16000 | 270 | 28 | 3,5 | 35 | 245 | 226 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2100 | 72 | 0,0727013 | 4,9 |
| **215** | 203 | 16100 | 270 | 28 | 3,5 | 35 | 245 | 226 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2100 | 72 | 0,0714750 | 4,8 |
| **220** | 208 | 16600 | 270 | 28 | 3,5 | 35 | 245 | 226 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2100 | 70 | 0,0667150 | 4,4 |
| **222** | 210 | 16700 | 270 | 28 | 3,5 | 35 | 245 | 226 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2100 | 70 | 0,0641466 | 4,2 |
| **230** | 218 | 17500 | 280 | 28 | 3,5 | 35 | 255 | 236 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2000 | 67 | 0,0754975 | 4,6 |
| **232** | 220 | 17700 | 280 | 28 | 3,5 | 35 | 255 | 236 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 2000 | 67 | 0,0727232 | 4,4 |
| **235** | 223 | 17900 | 290 | 28 | 3,5 | 35 | 265 | 246 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 1900 | 66 | 0,0905613 | 5,2 |
| **236** | 224 | 18000 | 290 | 28 | 3,5 | 35 | 265 | 246 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 1900 | 65 | 0,0891199 | 5,1 |
| **242** | 230 | 18600 | 290 | 28 | 3,5 | 35 | 265 | 246 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 1900 | 64 | 0,0820318 | 4,6 |
| **252** | 240 | 19500 | 300 | 28 | 3,5 | 35 | 276 | 256 | 12 | 18 | M 6 x 30 | 933 | 10.9 | 1900 | 61 | 0,0901836 | 4,7 |
| **257** | 245 | 22400 | 310 | 28 | 3,5 | 35 | 286 | 266 | 12 | 20 | M 6 x 30 | 933 | 10.9 | 1800 | 67 | 0,1094506 | 5,4 |
| **262** | 250 | 22900 | 310 | 28 | 3,5 | 35 | 286 | 266 | 12 | 20 | M 6 x 30 | 933 | 10.9 | 1800 | 66 | 0,1009057 | 4,9 |
| **266** | 254 | 25600 | 325 | 28 | 3,5 | 35 | 291 | 271 | 12 | 22 | M 6 x 30 | 933 | 10.9 | 1700 | 71 | 0,1366953 | 6,2 |
| **278** | 265 | 28900 | 352 | 32 | 4 | 40 | 304 | 284 | 12 | 24 | M 6 x 30 | 933 | 10.9 | 1600 | 65 | 0,2389108 | 9,5 |
| **280** | 267 | 29200 | 352 | 32 | 4 | 40 | 304 | 286 | 12 | 24 | M 6 x 30 | 933 | 10.9 | 1600 | 64 | 0,2351784 | 9,3 |
| **298** | 283 | 30600 | 370 | 32 | 4 | 40 | 322 | 302 | 12 | 24 | M 6 x 30 | 933 | 10.9 | 1500 | 60 | 0,2764874 | 9,8 |
| **300** | 285 | 30900 | 370 | 32 | 4 | 40 | 324 | 304 | 12 | 24 | M 6 x 30 | 933 | 10.9 | 1500 | 60 | 0,2722800 | 9,6 |
| **310** | 285 | 31000 | 385 | 32 | 4 | 40 | 334 | 314 | 12 | 26 | M 6 x 30 | 933 | 10.9 | 1400 | 63 | 0,3359469 | 11 |
| **335** | 300 | 51800 | 410 | 34 | 5 | 44 | 365 | 340 | 30 | 20 | M 8 x 35 | 933 | 10.9 | 1300 | 88 | 0,3854469 | 11 |
| **350** | 320 | 23700 | 405 | 28 | 4,5 | 37 | 374,7 | 357 | 18 | 15 | M 8 x 30 | 933 | 10.9 | 1400 | 46 | 0,2650356 | 7,4 |
| **360** | 330 | 71400 | 450 | 40 | 5 | 50 | 390 | 366 | 30 | 24 | M 8 x 40 | 933 | 10.9 | 1200 | 83 | 0,7472250 | 18 |
| **370** | 340 | 53500 | 455 | 42 | 5 | 52 | 400 | 376 | 30 | 18 | M 8 x 40 | 933 | 10.9 | 1200 | 58 | 0,7738312 | 18 |
| **380** | 340 | 52000 | 455 | 32 | 6 | 44 | 410 | 386 | 30 | 18 | M 8 x 30 | 933 | 10.9 | 1200 | 74 | 0,6149938 | 14 |

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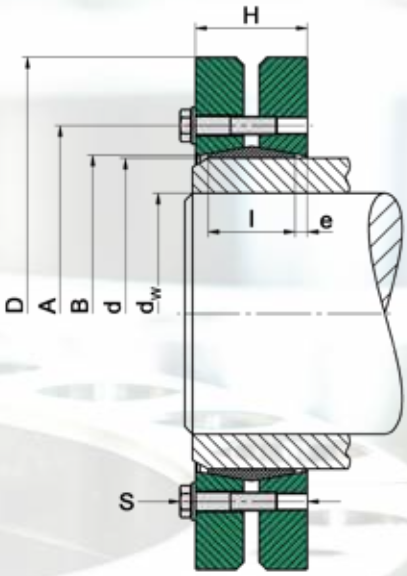
# 3051 Light-Range



## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

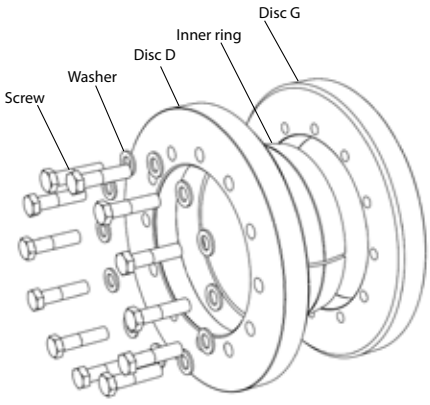
## Design of the shrink disc

| | |
|---|---|
| d < 140 | Discs galvanized without washers |
| d ≥ 140 | Discs painted with washers |

Dimensions H & e in unlocked position

Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexgon socket head bolts (Inbus).
(See ordering information)

| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |




**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 100 | 170 | -5 | 5 |
| 170 | 230 | -10 | 5 |
| 230 | 320 | -10 | 10 |
| 320 | 480 | -15 | 10 |
| 480 | 510 | -20 | 10 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

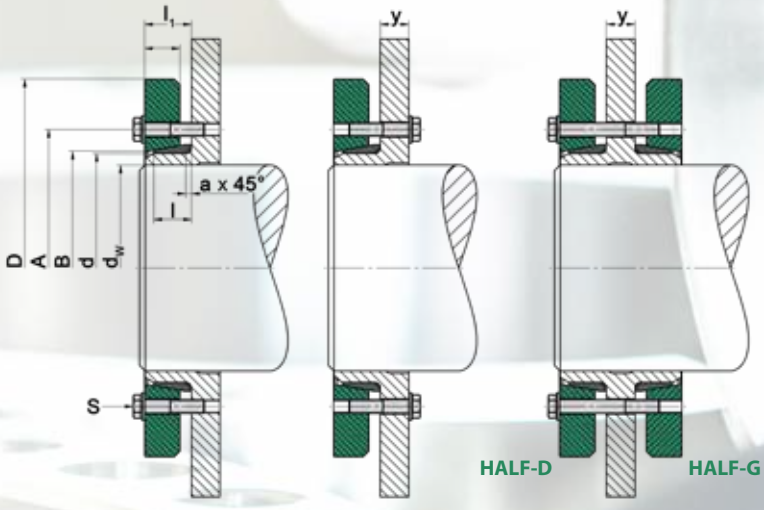
*(see Basics - Calculation)*

**Ordering information**: TAS 3051 - d (z.B. 3051-200)
**with Inbus:** TAS 3051 - d - Inbus (z.B. 3051-200-Inbus)

# 3051 Light-Range

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **120** | 100 | 11900 | 185 | 39 | 6 | 51 | 158 | 129 | 59 | 8 | M 10 x 40 | 931 | 10.9 | 3000 | 169 | 0,0328219 | 5,4 |
| **125** | 100 | 10900 | 185 | 39 | 6 | 51 | 158 | 129 | 59 | 8 | M 10 x 40 | 931 | 10.9 | 3000 | 163 | 0,0317794 | 5,1 |
| **140** | 120 | 17300 | 220 | 39 | 6 | 51 | 175 | 144 | 59 | 9 | M 10 x 40 | 931 | 10.9 | 2600 | 163 | 0,0663000 | 7,8 |
| **155** | 135 | 24800 | 245 | 39 | 6 | 51 | 192 | 159 | 59 | 11 | M 10 x 40 | 931 | 10.9 | 2300 | 180 | 0,1029612 | 9,8 |
| **165** | 140 | 33100 | 260 | 46 | 8 | 62 | 210 | 169 | 100 | 10 | M 12 x 50 | 931 | 10.9 | 2200 | 190 | 0,1540906 | 13 |
| **175** | 150 | 40000 | 275 | 46 | 8 | 62 | 220 | 179 | 100 | 11 | M 12 x 50 | 931 | 10.9 | 2000 | 198 | 0,1859375 | 14 |
| **185** | 160 | 47000 | 295 | 46 | 8 | 62 | 225 | 189 | 100 | 12 | M 12 x 50 | 931 | 10.9 | 1900 | 204 | 0,2576562 | 17 |
| **195** | 170 | 63400 | 315 | 56 | 8 | 72 | 237 | 199 | 100 | 15 | M 12 x 55 | 931 | 10.9 | 1800 | 199 | 0,3945938 | 23 |
| **200** | 180 | 75700 | 330 | 56 | 8 | 72 | 242 | 204 | 100 | 16 | M 12 x 55 | 931 | 10.9 | 1700 | 207 | 0,4839250 | 26 |
| **220** | 190 | 96500 | 345 | 66 | 9 | 84 | 265 | 224 | 250 | 10 | M 16 x 70 | 931 | 10.9 | 1600 | 205 | 0,6487719 | 31 |
| **240** | 210 | 132000 | 370 | 66 | 9 | 84 | 290 | 244 | 250 | 12 | M 16 x 70 | 931 | 10.9 | 1500 | 226 | 0,8509 | 35 |
| **260** | 230 | 172000 | 395 | 72 | 10 | 92 | 310 | 265 | 250 | 14 | M 16 x 70 | 931 | 10.9 | 1400 | 223 | 1,2299 | 44 |
| **280** | 240 | 196000 | 425 | 84 | 10 | 104 | 333 | 285 | 250 | 16 | M 16 x 75 | 931 | 10.9 | 1300 | 203 | 1,8779 | 58 |
| **300** | 260 | 243000 | 460 | 84 | 10 | 104 | 358 | 305 | 250 | 18 | M 16 x 75 | 931 | 10.9 | 1200 | 213 | 2,6013 | 69 |
| **320** | 280 | 297000 | 495 | 84 | 11 | 106 | 378 | 325 | 250 | 20 | M 16 x 75 | 931 | 10.9 | 1100 | 222 | 3,6914 | 85 |
| **340** | 300 | 339000 | 535 | 84 | 11 | 106 | 402 | 345 | 250 | 21 | M 16 x 75 | 931 | 10.9 | 1000 | 219 | 5,0730 | 101 |
| **350** | 300 | 388000 | 545 | 100 | 11 | 122 | 413 | 360 | 490 | 16 | M 20 x 90 | 931 | 10.9 | 1000 | 213 | 6,0831 | 116 |
| **360** | 310 | 404000 | 555 | 100 | 11 | 122 | 423 | 365 | 490 | 16 | M 20 x 90 | 931 | 10.9 | 1000 | 207 | 6,5097 | 119 |
| **380** | 330 | 487000 | 585 | 112 | 12 | 136 | 442 | 387 | 490 | 18 | M 20 x 100 | 931 | 10.9 | 970 | 197 | 8,94 | 147 |
| **390** | 340 | 564000 | 595 | 112 | 12 | 136 | 452 | 397 | 490 | 20 | M 20 x 100 | 931 | 10.9 | 960 | 214 | 9,49 | 150 |
| **400** | 350 | 614000 | 615 | 112 | 12 | 136 | 462 | 407 | 490 | 21 | M 20 x 100 | 931 | 10.9 | 930 | 219 | 10,90 | 162 |
| **420** | 360 | 643000 | 630 | 120 | 12 | 144 | 485 | 427 | 490 | 22 | M 20 x 100 | 931 | 10.9 | 900 | 204 | 12,47 | 174 |
| **440** | 380 | 751000 | 660 | 120 | 12 | 144 | 505 | 447 | 490 | 24 | M 20 x 100 | 931 | 10.9 | 860 | 212 | 15,02 | 191 |
| **460** | 400 | 934000 | 685 | 132 | 13 | 158 | 527 | 468 | 490 | 28 | M 20 x 110 | 931 | 10.9 | 830 | 215 | 19,23 | 226 |
| **480** | 420 | 981000 | 715 | 132 | 13 | 158 | 547 | 488 | 490 | 28 | M 20 x 110 | 931 | 10.9 | 800 | 206 | 22,80 | 246 |
| **500** | 440 | 1113000 | 750 | 132 | 13 | 158 | 567 | 508 | 490 | 30 | M 20 x 110 | 931 | 10.9 | 760 | 212 | 27,83 | 274 |
| **530** | 470 | 1319000 | 800 | 150 | 12,5 | 175 | 600 | 540 | 490 | 33 | M 20 x 120 | 931 | 10.9 | 710 | 194 | 39,83 | 346 |
| **560** | 500 | 1550000 | 850 | 150 | 12,5 | 175 | 630 | 570 | 490 | 36 | M 20 x 120 | 931 | 10.9 | 670 | 200 | 51,03 | 394 |
| **590** | 530 | 1652000 | 870 | 150 | 12,5 | 175 | 676 | 602 | 490 | 36 | M 20 x 130 | 931 | 10.9 | 650 | 190 | 54,42 | 394 |
| **620** | 560 | 1759000 | 880 | 150 | 12,5 | 175 | 686 | 624 | 490 | 36 | M 20 x 130 | 931 | 10.9 | 650 | 181 | 54,46 | 376 |

# 3051 Half/Split (Light-Range)



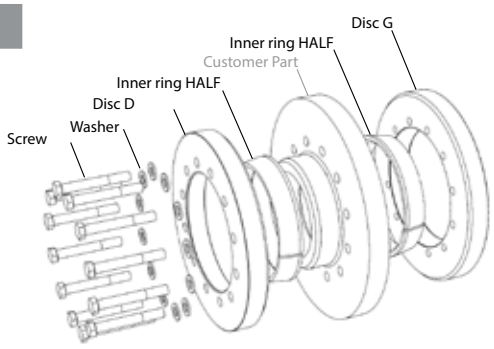
HALF-D

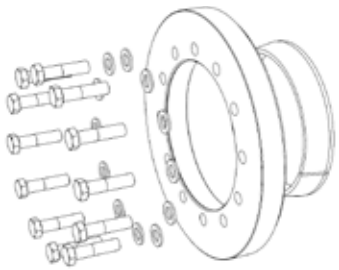
HALF-G

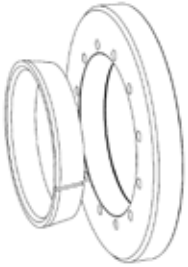
SPLIT

## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |





## Design of the shrink disc

| | |
|---|---|
| d < 140 | Discs galvanized without washers |
| d ≥ 140 | Discs painted with washers |

| min. yield strength Rp0,2 | N/mm² |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

Dimensions H & e in unlocked position

Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

Deviation from the standard shaft diameter $d_W$ see the table **„3051 Light-Range“** and **„Calculation of transmissible torques and forces“** Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

**For Typ in ordering information:**
- GET means SPLIT
- HALB means HALF

**Ordering information: TAS 3051Typ - d - y** (for Example: TAS 3051GET-200-Y60 or TAS 3051HALB-G-200-Y30 or TAS 3051HALB-D-200)
**with Inbus: TAS 3051Typ - d - y - Inbus** (z.B.: TAS 3051GET-200-Y60-Inbus e.t.c.)


**TAS Schäfer GmbH** • Osterfeldstraße 75 • 58300 Wetter

# 3051 Half/Split (Light-Range)

## Please note:

All values refer to shrink disk design **HALF**! Please provide us the dimension of „y“ or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

**Applies to shrink disc design HALF-G:**

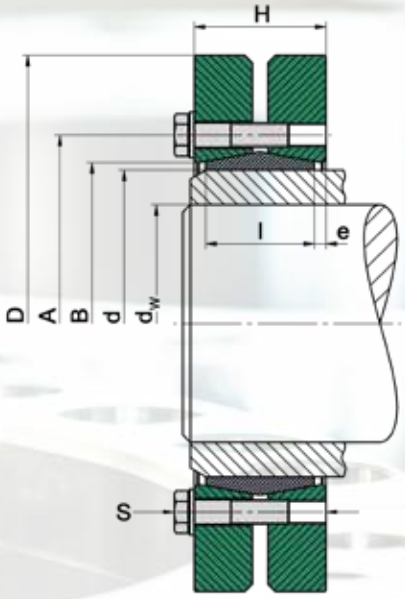
- The required screw length is:
  Screw length (3051 Light-Range) - l1 + 2 a + y (rounded up to standard lengths)

**Applies to shrink disc design SPLIT:**

- The design consists of 1x HALF-D + 1x HALF-G
- Delivery is possible with or without screws
- Maximum transmittable torque: $M_{ges} = 2\ M_{max}$
- The required screw length: Screw length (3051 Light-Range) + 2 a + y (rounded up to standard lengths)

| | | | | | | | | | | | HALF-D only | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *d* mm | $d_W$ mm | $M_{max}$ Nm | *D* mm | *l* mm | *a* mm | $l_1$ mm | *A* mm | *B* mm | $M_A$ Nm | *Z* Stk | $d_B$ mm | *S* | *DIN* | *Class* | $n_{max}$ min$^{-1}$ | $p_N$ N/mm$^2$ | *I* kgm$^2$ | *Weight* kg |
| **120** | 100 | 5900 | 185 | 24,5 | 5 | 30,5 | 158 | 129 | 59 | 8 | 11 | M 10 x 40 | 931 | 10.9 | 3000 | 169 | 0,0164109 | 2,7 |
| **125** | 100 | 5400 | 185 | 24,5 | 5 | 30,5 | 158 | 129 | 59 | 8 | 11 | M 10 x 40 | 931 | 10.9 | 3000 | 163 | 0,0155781 | 2,5 |
| **140** | 120 | 8600 | 220 | 24,5 | 5 | 30,5 | 175 | 144 | 59 | 9 | 11 | M 10 x 40 | 931 | 10.9 | 2600 | 163 | 0,0331500 | 3,9 |
| **155** | 135 | 12400 | 245 | 24,5 | 5 | 30,5 | 192 | 159 | 59 | 11 | 11 | M 10 x 40 | 931 | 10.9 | 2300 | 180 | 0,0514806 | 4,9 |
| **165** | 140 | 16500 | 260 | 28 | 5 | 36 | 210 | 169 | 100 | 10 | 13,5 | M 12 x 50 | 931 | 10.9 | 2200 | 190 | 0,0770453 | 6,5 |
| **175** | 150 | 20000 | 275 | 28 | 5 | 36 | 220 | 179 | 100 | 11 | 13,5 | M 12 x 50 | 931 | 10.9 | 2000 | 198 | 0,0956250 | 7,2 |
| **185** | 160 | 23500 | 295 | 28 | 5 | 36 | 225 | 189 | 100 | 12 | 13,5 | M 12 x 50 | 931 | 10.9 | 1900 | 204 | 0,1288281 | 8,5 |
| **195** | 170 | 31700 | 315 | 33 | 5 | 41 | 237 | 199 | 100 | 15 | 13,5 | M 12 x 55 | 931 | 10.9 | 1800 | 199 | 0,2058750 | 12 |
| **200** | 180 | 37800 | 330 | 33 | 5 | 41 | 242 | 204 | 100 | 16 | 13,5 | M 12 x 55 | 931 | 10.9 | 1700 | 207 | 0,2419625 | 13 |
| **220** | 190 | 48200 | 345 | 41 | 6 | 50 | 265 | 224 | 250 | 10 | 17,5 | M 16 x 70 | 931 | 10.9 | 1600 | 205 | 0,3348500 | 16 |
| **240** | 210 | 66100 | 370 | 41 | 6 | 50 | 290 | 244 | 250 | 12 | 17,5 | M 16 x 70 | 931 | 10.9 | 1500 | 226 | 0,4376250 | 18 |
| **260** | 230 | 86200 | 395 | 44 | 6 | 54 | 310 | 265 | 250 | 14 | 17,5 | M 16 x 70 | 931 | 10.9 | 1400 | 223 | 0,6149687 | 22 |
| **280** | 240 | 98100 | 425 | 52 | 8 | 62 | 333 | 285 | 250 | 16 | 17,5 | M 16 x 80 | 931 | 10.9 | 1300 | 203 | 0,9390 | 29 |
| **300** | 260 | 121000 | 460 | 52 | 8 | 62 | 358 | 305 | 250 | 18 | 17,5 | M 16 x 80 | 931 | 10.9 | 1200 | 213 | 1,3195 | 35 |
| **320** | 280 | 148000 | 495 | 52 | 8 | 63 | 378 | 325 | 250 | 20 | 17,5 | M 16 x 80 | 931 | 10.9 | 1100 | 222 | 1,8240 | 42 |
| **340** | 300 | 169000 | 535 | 52 | 8 | 63 | 402 | 345 | 250 | 21 | 17,5 | M 16 x 80 | 931 | 10.9 | 1000 | 219 | 2,5616 | 51 |
| **350** | 300 | 202000 | 545 | 60 | 10 | 71 | 413 | 360 | 490 | 16 | 22 | M 20 x 90 | 931 | 10.9 | 1000 | 213 | 3,0416 | 58 |
| **360** | 310 | 202000 | 555 | 60 | 10 | 71 | 423 | 365 | 490 | 16 | 22 | M 20 x 90 | 931 | 10.9 | 1000 | 207 | 3,2275 | 59 |
| **380** | 330 | 243000 | 585 | 69 | 12 | 81 | 442 | 387 | 490 | 18 | 22 | M 20 x 100 | 931 | 10.9 | 970 | 197 | 4,4405 | 73 |
| **390** | 340 | 282000 | 595 | 69 | 12 | 81 | 452 | 397 | 490 | 20 | 22 | M 20 x 100 | 931 | 10.9 | 960 | 214 | 4,7449 | 75 |
| **400** | 350 | 307000 | 615 | 69 | 12 | 81 | 462 | 407 | 490 | 21 | 22 | M 20 x 100 | 931 | 10.9 | 930 | 219 | 5,4495 | 81 |
| **420** | 360 | 321000 | 630 | 73 | 12 | 85 | 485 | 427 | 490 | 22 | 22 | M 20 x 110 | 931 | 10.9 | 900 | 204 | 6,2346 | 87 |
| **440** | 380 | 375000 | 660 | 73 | 12 | 85 | 505 | 447 | 490 | 24 | 22 | M 20 x 110 | 931 | 10.9 | 860 | 212 | 7,5504 | 96 |
| **460** | 400 | 467000 | 685 | 79 | 14 | 92 | 527 | 468 | 490 | 28 | 22 | M 20 x 120 | 931 | 10.9 | 830 | 215 | 9,6167 | 113 |
| **480** | 420 | 490000 | 715 | 81 | 14 | 94 | 547 | 488 | 490 | 28 | 22 | M 20 x 120 | 931 | 10.9 | 800 | 206 | 11,40 | 123 |
| **500** | 440 | 556000 | 750 | 81 | 14 | 94 | 567 | 508 | 490 | 30 | 22 | M 20 x 120 | 931 | 10.9 | 760 | 212 | 13,91 | 137 |
| **530** | 470 | 659000 | 800 | 90 | 14 | 102,5 | 600 | 540 | 490 | 33 | 22 | M 20 x 120 | 931 | 10.9 | 710 | 194 | 19,91 | 173 |
| **560** | 500 | 775000 | 850 | 90 | 14 | 102,5 | 630 | 570 | 490 | 36 | 22 | M 20 x 120 | 931 | 10.9 | 670 | 200 | 25,51 | 197 |
| **590** | 530 | 826000 | 870 | 90 | 14 | 102,5 | 676 | 602 | 490 | 36 | 22 | M 20 x 130 | 931 | 10.9 | 650 | 190 | 27,21 | 197 |
| **620** | 560 | 879000 | 880 | 90 | 14 | 102,5 | 686 | 624 | 490 | 36 | 22 | M 20 x 130 | 931 | 10.9 | 650 | 181 | 27,23 | 188 |

# 3071 Standard-Range



## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the shrink disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

Dimensions H & e in unlocked position

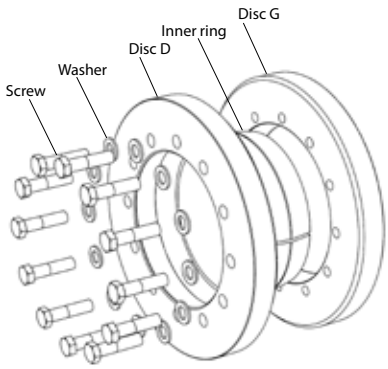
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 10 | 30 | -1 | 1 |
| 30 | 50 | -3 | 2 |
| 50 | 140 | -5 | 5 |
| 140 | 180 | -10 | 5 |
| 180 | 320 | -15 | 10 |
| 320 | 500 | -20 | 10 |
| 500 | 700 | -30 | 20 |
| 700 | 820 | -40 | 20 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

*(see Basics - Calculation)*




| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

**Ordering information**: **TAS 3071 - d** (for example: TAS 3071-200 ...(Further sizes on request
**with Inbus: TAS 3071 - d - Inbus** (for example: TAS 3071-200-Inbus)

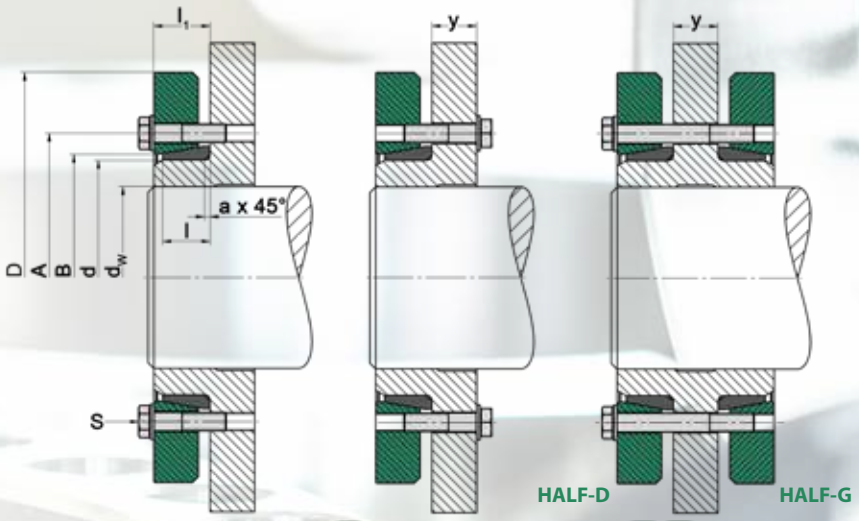
# 3071 Standard-Range

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **14** | 11 | 27 | 37 | 9 | 1,5 | 12 | 24 | 15 | 2,4 | 3 | M 4 x 10 | 933 | 8.8 | 15400 | 254 | 0,0000137 | 0,07 |
| **16** | 13 | 59 | 41 | 12 | 1,5 | 15 | 27 | 17 | 4,8 | 3 | M 5 x 12 | 933 | 8.8 | 13900 | 240 | 0,0000266 | 0,11 |
| **18** | 15 | 110 | 43 | 12 | 1,5 | 15 | 29 | 19 | 4,8 | 4 | M 5 x 12 | 933 | 8.8 | 13300 | 285 | 0,0000326 | 0,12 |
| **20** | 17 | 220 | 48 | 14 | 2,75 | 19,5 | 34 | 24 | 6 | 5 | M 5 x 18 | 933 | 10.9 | 11900 | 322 | 0,0000642 | 0,19 |
| **21** | 18 | 240 | 48 | 14 | 2,75 | 19,5 | 34 | 24 | 6 | 5 | M 5 x 18 | 933 | 10.9 | 11900 | 307 | 0,0000618 | 0,18 |
| **22** | 19 | 250 | 48 | 14 | 2,75 | 19,5 | 36 | 26 | 6 | 5 | M 5 x 18 | 933 | 10.9 | 11900 | 293 | 0,0000627 | 0,18 |
| **24** | 20 | 300 | 50 | 14 | 2,5 | 19 | 36 | 26 | 6 | 6 | M 5 x 18 | 933 | 10.9 | 11400 | 322 | 0,0000731 | 0,19 |
| **30** | 25 | 360 | 60 | 16 | 2,75 | 21,5 | 44 | 32 | 6 | 6 | M 5 x 18 | 931 | 10.9 | 9500 | 225 | 0,0001687 | 0,30 |
| **36** | 30 | 640 | 72 | 18 | 2,75 | 23,5 | 52 | 38 | 12 | 5 | M 6 x 20 | 933 | 10.9 | 7900 | 231 | 0,0003888 | 0,48 |
| **38** | 31 | 910 | 80 | 20 | 3 | 26 | 56 | 41 | 12 | 7 | M 6 x 20 | 933 | 10.9 | 7100 | 275 | 0,0006569 | 0,67 |
| **40** | 32 | 740 | 75 | 19 | 2,75 | 24,5 | 57 | 43 | 12 | 6 | M 6 x 20 | 933 | 10.9 | 7600 | 236 | 0,0004967 | 0,55 |
| **41** | 33 | 940 | 80 | 20 | 2,75 | 25,5 | 61 | 46 | 12 | 7 | M 6 x 20 | 933 | 10.9 | 7100 | 255 | 0,0006465 | 0,64 |
| **44** | 35 | 970 | 80 | 20 | 2,75 | 25,5 | 61 | 47 | 12 | 7 | M 6 x 20 | 933 | 10.9 | 7100 | 238 | 0,0006356 | 0,61 |
| **50** | 40 | 1200 | 90 | 22 | 3 | 28 | 70 | 53 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 6300 | 217 | 0,0010998 | 0,83 |
| **55** | 45 | 1500 | 100 | 23 | 3,75 | 30,5 | 75 | 58 | 12 | 8 | M 6 x 25 | 933 | 10.9 | 5700 | 189 | 0,0017909 | 1,1 |
| **62** | 50 | 2100 | 110 | 23 | 3,75 | 30,5 | 86 | 66 | 12 | 10 | M 6 x 25 | 933 | 10.9 | 5200 | 210 | 0,0025909 | 1,3 |
| **68** | 55 | 2200 | 115 | 23 | 3,75 | 30,5 | 86 | 72 | 12 | 10 | M 6 x 25 | 933 | 10.9 | 4900 | 191 | 0,0031236 | 1,4 |
| **75** | 60 | 3600 | 138 | 25 | 3,75 | 32,5 | 100 | 79 | 30 | 7 | M 8 x 30 | 933 | 10.9 | 4100 | 233 | 0,0070923 | 2,3 |
| **80** | 65 | 4100 | 145 | 25 | 3,75 | 32,5 | 100 | 84 | 30 | 7 | M 8 x 30 | 933 | 10.9 | 3900 | 218 | 0,0085703 | 2,5 |
| **90** | 70 | 6000 | 155 | 30 | 4,5 | 39 | 114 | 94 | 30 | 10 | M 8 x 35 | 931 | 10.9 | 3600 | 231 | 0,0132516 | 3,3 |
| **100** | 75 | 7300 | 170 | 34 | 5 | 44 | 124 | 104 | 30 | 12 | M 8 x 35 | 931 | 10.9 | 3300 | 220 | 0,0213950 | 4,4 |
| **110** | 80 | 8900 | 185 | 39 | 5,5 | 50 | 136 | 114 | 59 | 9 | M 10 x 40 | 931 | 10.9 | 3000 | 208 | 0,0347437 | 6,0 |
| **115** | 80 | 9300 | 200 | 40 | 5 | 50 | 150 | 124 | 59 | 10 | M 10 x 40 | 931 | 10.9 | 2800 | 215 | 0,0485678 | 7,3 |
| **120** | 85 | 9600 | 200 | 40 | 5 | 50 | 150 | 124 | 59 | 10 | M 10 x 40 | 931 | 10.9 | 2800 | 206 | 0,0476000 | 7,0 |
| **125** | 90 | 13100 | 215 | 42 | 6 | 54 | 160 | 134 | 59 | 12 | M 10 x 40 | 931 | 10.9 | 2600 | 226 | 0,0672619 | 8,7 |
| **140** | 100 | 17900 | 230 | 46 | 7,25 | 60,5 | 175 | 146 | 100 | 10 | M 12 x 50 | 931 | 10.9 | 2400 | 224 | 0,0996875 | 11 |
| **155** | 110 | 23900 | 265 | 50 | 7,25 | 64,5 | 192 | 165 | 100 | 12 | M 12 x 50 | 931 | 10.9 | 2100 | 224 | 0,1885000 | 16 |
| **165** | 120 | 38700 | 290 | 56 | 7,5 | 71 | 210 | 175 | 250 | 8 | M 16 x 55 | 931 | 10.9 | 1900 | 258 | 0,3061438 | 22 |
| **175** | 130 | 42600 | 300 | 56 | 7,5 | 71 | 220 | 185 | 250 | 8 | M 16 x 55 | 931 | 10.9 | 1900 | 243 | 0,3467969 | 23 |
| **185** | 140 | 59000 | 330 | 71 | 7,5 | 86 | 236 | 195 | 250 | 10 | M 16 x 70 | 931 | 10.9 | 1700 | 227 | 0,6261719 | 35 |
| **195** | 150 | 79500 | 350 | 71 | 7,5 | 86 | 246 | 210 | 250 | 12 | M 16 x 70 | 931 | 10.9 | 1600 | 258 | 0,8026250 | 40 |
| **200** | 155 | 81700 | 350 | 71 | 7,5 | 86 | 246 | 210 | 250 | 12 | M 16 x 70 | 931 | 10.9 | 1600 | 252 | 0,7921875 | 39 |
| **220** | 165 | 103000 | 370 | 88 | 8 | 104 | 270 | 230 | 250 | 15 | M 16 x 80 | 931 | 10.9 | 1500 | 231 | 1,1813 | 51 |
| **240** | 180 | 144000 | 405 | 92 | 8,5 | 109 | 295 | 248 | 490 | 12 | M 20 x 80 | 931 | 10.9 | 1400 | 254 | 1,7730 | 64 |
| **245** | 185 | 147000 | 410 | 95 | 8 | 111 | 298 | 251 | 490 | 12 | M 20 x 80 | 931 | 10.9 | 1300 | 241 | 1,9105 | 67 |
| **260** | 190 | 170000 | 440 | 103 | 8,5 | 120 | 321 | 268 | 490 | 14 | M 20 x 90 | 931 | 10.9 | 1300 | 244 | 2,7426 | 84 |
| **280** | 210 | 224000 | 460 | 114 | 10 | 134 | 346 | 288 | 490 | 16 | M 20 x 100 | 931 | 10.9 | 1200 | 234 | 3,5888 | 99 |
| **300** | 230 | 287000 | 485 | 122 | 10 | 142 | 364 | 308 | 490 | 18 | M 20 x 100 | 931 | 10.9 | 1100 | 230 | 4,6751 | 115 |
| **320** | 240 | 326000 | 520 | 122 | 10 | 142 | 386 | 328 | 490 | 20 | M 20 x 100 | 931 | 10.9 | 1100 | 239 | 6,1978 | 133 |
| **340** | 250 | 401000 | 570 | 134 | 11 | 156 | 408 | 348 | 490 | 24 | M 20 x 110 | 931 | 10.9 | 1000 | 246 | 10,08 | 183 |
| **350** | 270 | 456000 | 580 | 140 | 11 | 162 | 432 | 358 | 490 | 24 | M 20 x 110 | 931 | 10.9 | 980 | 229 | 11,07 | 193 |
| **360** | 290 | 519000 | 590 | 140 | 11 | 162 | 432 | 368 | 490 | 24 | M 20 x 110 | 931 | 10.9 | 970 | 222 | 11,76 | 197 |
| **380** | 300 | 635000 | 645 | 144 | 12 | 168 | 458 | 387 | 840 | 20 | M 24 x 120 | 931 | 10.9 | 880 | 245 | 17,86 | 255 |
| **390** | 310 | 697000 | 660 | 144 | 12 | 168 | 468 | 397 | 840 | 21 | M 24 x 120 | 931 | 10.9 | 860 | 251 | 19,54 | 266 |

# 3071 Standard-Range

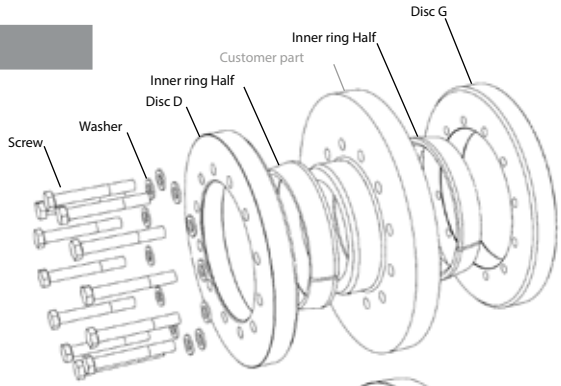
| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **400** | 320 | 722000 | 680 | 144 | 12 | 168 | 480 | 407 | 840 | 21 | M 24 x 120 | 931 | 10.9 | 840 | 245 | 22,10 | 284 |
| **420** | 340 | 891000 | 690 | 164 | 12 | 188 | 504 | 427 | 840 | 24 | M 24 x 130 | 931 | 10.9 | 830 | 234 | 25,94 | 318 |
| **440** | 350 | 891000 | 750 | 177 | 12,5 | 202 | 527 | 447 | 840 | 24 | M 24 x 140 | 931 | 10.9 | 760 | 207 | 39,13 | 414 |
| **460** | 370 | 1127000 | 770 | 177 | 12,5 | 202 | 547 | 468 | 840 | 28 | M 24 x 140 | 931 | 10.9 | 740 | 231 | 43,04 | 428 |
| **480** | 390 | 1290000 | 800 | 188 | 12,5 | 213 | 570 | 488 | 840 | 30 | M 24 x 140 | 931 | 10.9 | 710 | 223 | 52,77 | 485 |
| **500** | 410 | 1431000 | 850 | 188 | 12,5 | 213 | 590 | 508 | 1250 | 24 | M 27 x 150 | 931 | 10.9 | 670 | 225 | 68,08 | 560 |
| **530** | 440 | 1961000 | 900 | 215 | 12,5 | 240 | 620 | 538 | 1250 | 30 | M 27 x 180 | 931 | 10.9 | 630 | 232 | 93,54 | 686 |
| **560** | 460 | 2165000 | 950 | 215 | 12,5 | 240 | 650 | 568 | 1250 | 32 | M 27 x 180 | 931 | 10.9 | 600 | 234 | 116 | 763 |
| **590** | 480 | 2514000 | 980 | 235 | 15 | 265 | 685 | 600 | 1250 | 36 | M 27 x 180 | 931 | 10.9 | 580 | 229 | 142 | 869 |
| **620** | 510 | 2856000 | 1020 | 235 | 15 | 265 | 715 | 630 | 1250 | 38 | M 27 x 180 | 931 | 10.9 | 560 | 230 | 166 | 931 |
| **660** | 540 | 3676000 | 1100 | 260 | 15 | 290 | 760 | 670 | 1700 | 38 | M 30 x 200 | 931 | 10.9 | 520 | 238 | 246 | 1195 |
| **700** | 580 | 4232000 | 1200 | 260 | 15 | 290 | 800 | 710 | 1700 | 40 | M 30 x 200 | 931 | 10.9 | 470 | 236 | 354 | 1466 |
| **720** | 600 | 4639000 | 1230 | 260 | 15 | 290 | 820 | 730 | 1700 | 42 | M 30 x 200 | 931 | 10.9 | 460 | 241 | 390 | 1535 |
| **750** | 620 | 4967000 | 1230 | 280 | 17,5 | 315 | 855 | 762 | 1700 | 44 | M 30 x 220 | 931 | 10.9 | 460 | 225 | 420 | 1619 |
| **800** | 660 | 5501000 | 1310 | 280 | 17,5 | 315 | 905 | 812 | 1700 | 46 | M 30 x 220 | 931 | 10.9 | 430 | 220 | 540 | 1833 |
| **850** | 700 | 6322000 | 1330 | 310 | 17,5 | 345 | 965 | 862 | 1700 | 50 | M 30 x 250 | 931 | 10.9 | 430 | 204 | 604 | 1938 |
| **900** | 740 | 6950000 | 1400 | 310 | 17,5 | 345 | 1015 | 912 | 1700 | 52 | M 30 x 250 | 931 | 10.9 | 400 | 200 | 738 | 2130 |
| **950** | 780 | 8421000 | 1550 | 340 | 20 | 380 | 1075 | 962 | 2800 | 42 | M 36 x 260 | 931 | 10.9 | 370 | 199 | 1285 | 3111 |
| **1000** | 820 | 10562000 | 1620 | 340 | 20 | 380 | 1125 | 1012 | 2800 | 50 | M 36 x 260 | 931 | 10.9 | 350 | 225 | 1526 | 3369 |

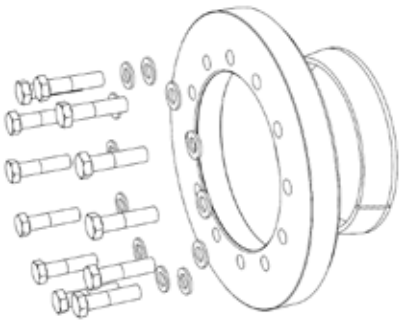
# 3071 Half/Split (Standard-Range)

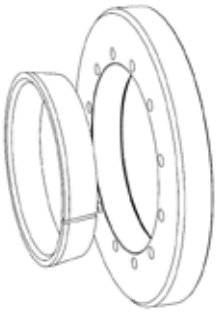


## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| I | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average Pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |





## Design of the shrink disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

Dimensions H & e in unlocked position

Deviation from the standard shaft diameter **$d_W$** see the table **„3071 Standard-Range“** and **„Calculation of transmissible torques and forces“**
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)

**Ordering information: TAS 3071Typ - d - y** (z.B.: TAS 3071GET-200-Y60 oder TAS 3071HALB-G-200-Y30 oder TAS 3071HALB-D-200)
**with Inbus: TAS 3071Typ - d - y - Inbus** (z.B.: TAS 3071GET-200-Y60-Inbus u.s.w.)

# 3071 Half/Split (Standard-Range)

**Please note:**

All values refer to shrink disk design **HALF!** Please provide us the dimension of **„y“** or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

Applies to shrink disc design HALF-G:

- The required screw length is: Screw length **(3071 Standard-Range)** - $l_1$ + 2 a + y (rounded up to standard lengths)

Applies to shrink disc design SPLIT:

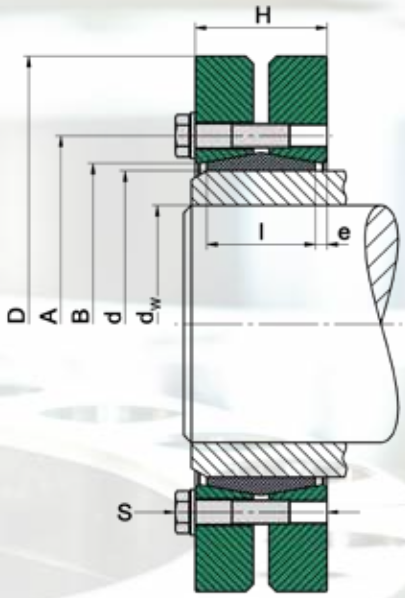
- The design consists of 1x HALF-D + 1x HALF-G
- Delivery is possible with or without screws
- Maximum transmittable torque: $M_{ges} = 2\ M_{max}$
- The required screw length: Screw length **(3071 Standard-Range)** + 2 a + y (rounded up to standard lengths)

| | | | | | | | | | | | HALF-D only | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *d* mm | $d_W$ mm | $M_{max}$ Nm | *D* mm | *l* mm | *a* mm | $l_1$ mm | *A* mm | *B* mm | $M_A$ Nm | *Z* Stk | $d_B$ mm | *S* | *DIN* | *Class* | $n_{max}$ min$^{-1}$ | $p_N$ N/mm$^2$ | *I* kgm$^2$ | *Weight* kg |
| **14** | 11 | 14 | 37 | 6 | 0,8 | 7,5 | 24 | 15 | 2,4 | 3 | 4,5 | M 4 x 12 | 933 | 10.9 | 15400 | 257 | 0,0000078 | 0,04 |
| **16** | 13 | 39 | 41 | 7,5 | 0,8 | 9 | 27 | 17 | 4,8 | 3 | 5,5 | M 5 x 14 | 933 | 10.9 | 13900 | 282 | 0,0000121 | 0,05 |
| **18** | 15 | 59 | 43 | 7,5 | 0,8 | 9 | 29 | 19 | 4,8 | 4 | 5,5 | M 5 x 14 | 933 | 8.8 | 13300 | 285 | 0,0000163 | 0,06 |
| **20** | 17 | 110 | 48 | 8,5 | 1,5 | 11,25 | 34 | 24 | 6 | 5 | 5,5 | M 5 x 18 | 933 | 10.9 | 11900 | 322 | 0,0000304 | 0,09 |
| **21** | 18 | 120 | 48 | 8,5 | 1,5 | 11,25 | 34 | 24 | 6 | 5 | 5,5 | M 5 x 18 | 933 | 10.9 | 11900 | 307 | 0,0000309 | 0,09 |
| **22** | 19 | 120 | 48 | 8,5 | 1,5 | 11,25 | 36 | 26 | 6 | 5 | 5,5 | M 5 x 18 | 933 | 10.9 | 11900 | 293 | 0,0000314 | 0,09 |
| **24** | 20 | 150 | 50 | 9 | 1,5 | 11,5 | 36 | 26 | 6 | 6 | 5,5 | M 5 x 18 | 933 | 10.9 | 11400 | 322 | 0,0000366 | 0,09 |
| **30** | 25 | 180 | 60 | 10 | 2 | 12,75 | 44 | 32 | 6 | 6 | 5,5 | M 5 x 18 | 931 | 10.9 | 9500 | 225 | 0,0000844 | 0,15 |
| **36** | 30 | 320 | 72 | 11 | 2 | 13,75 | 52 | 38 | 12 | 5 | 6,6 | M 6 x 20 | 933 | 10.9 | 7900 | 231 | 0,0001944 | 0,24 |
| **38** | 31 | 450 | 80 | 12 | 2 | 15 | 56 | 41 | 12 | 7 | 6,6 | M 6 x 22 | 933 | 10.9 | 7100 | 275 | 0,0003334 | 0,34 |
| **40** | 32 | 370 | 75 | 11,5 | 2 | 14,25 | 57 | 43 | 12 | 6 | 6,6 | M 6 x 22 | 933 | 10.9 | 7600 | 236 | 0,0002438 | 0,27 |
| **41** | 33 | 470 | 80 | 12 | 2 | 14,75 | 61 | 46 | 12 | 7 | 6,6 | M 6 x 22 | 933 | 10.9 | 7100 | 255 | 0,0003232 | 0,32 |
| **44** | 35 | 480 | 80 | 12 | 2 | 14,75 | 61 | 47 | 12 | 7 | 6,6 | M 6 x 22 | 933 | 10.9 | 7100 | 238 | 0,0003126 | 0,30 |
| **50** | 40 | 640 | 90 | 13 | 2 | 16 | 70 | 53 | 12 | 8 | 6,6 | M 6 x 25 | 933 | 10.9 | 6300 | 217 | 0,0005432 | 0,41 |
| **55** | 45 | 750 | 100 | 14 | 2,5 | 17,75 | 75 | 58 | 12 | 8 | 6,6 | M 6 x 25 | 933 | 10.9 | 5700 | 189 | 0,0009118 | 0,56 |
| **62** | 50 | 1000 | 110 | 14 | 2,5 | 17,75 | 86 | 66 | 12 | 10 | 6,6 | M 6 x 25 | 933 | 10.9 | 5200 | 210 | 0,0013154 | 0,66 |
| **68** | 55 | 1100 | 115 | 14 | 2,5 | 17,75 | 86 | 72 | 12 | 10 | 6,6 | M 6 x 25 | 933 | 10.9 | 4900 | 191 | 0,0015395 | 0,69 |
| **75** | 60 | 1800 | 138 | 16,5 | 3 | 20,25 | 100 | 79 | 30 | 7 | 9 | M 8 x 30 | 933 | 10.9 | 4100 | 233 | 0,0037004 | 1,2 |
| **80** | 65 | 2000 | 145 | 16,5 | 3 | 20,25 | 100 | 84 | 30 | 7 | 9 | M 8 x 30 | 933 | 10.9 | 3900 | 218 | 0,0044566 | 1,3 |
| **90** | 70 | 3000 | 155 | 20 | 4 | 24,5 | 114 | 94 | 30 | 10 | 9 | M 8 x 35 | 931 | 10.9 | 3600 | 231 | 0,0068266 | 1,7 |
| **100** | 75 | 3600 | 170 | 22 | 4 | 27 | 124 | 104 | 30 | 12 | 9 | M 8 x 35 | 931 | 10.9 | 3300 | 220 | 0,0106975 | 2,2 |
| **110** | 80 | 4400 | 185 | 24,5 | 4 | 30 | 136 | 114 | 59 | 9 | 11 | M 10 x 40 | 931 | 10.9 | 3000 | 208 | 0,0173719 | 3,0 |
| **115** | 80 | 4600 | 200 | 25 | 4 | 30 | 150 | 124 | 59 | 10 | 11 | M 10 x 40 | 931 | 10.9 | 2800 | 215 | 0,0239512 | 3,6 |
| **120** | 85 | 4800 | 200 | 25 | 4 | 30 | 150 | 124 | 59 | 10 | 11 | M 10 x 40 | 931 | 10.9 | 2800 | 206 | 0,0238000 | 3,5 |
| **125** | 90 | 6500 | 215 | 26 | 5 | 32 | 160 | 134 | 59 | 12 | 11 | M 10 x 45 | 931 | 10.9 | 2600 | 226 | 0,0332444 | 4,3 |
| **140** | 100 | 8900 | 230 | 28 | 5 | 35,25 | 175 | 146 | 100 | 10 | 13,5 | M 12 x 50 | 931 | 10.9 | 2400 | 224 | 0,0480312 | 5,3 |
| **155** | 110 | 11900 | 265 | 30 | 5 | 37,25 | 192 | 165 | 100 | 12 | 13,5 | M 12 x 50 | 931 | 10.9 | 2100 | 224 | 0,0942500 | 8,0 |
| **165** | 120 | 19300 | 290 | 33 | 5 | 40,5 | 210 | 175 | 250 | 8 | 17,5 | M 16 x 55 | 931 | 10.9 | 1900 | 258 | 0,1530719 | 11 |
| **175** | 130 | 21300 | 300 | 33 | 5 | 40,5 | 220 | 185 | 250 | 8 | 17,5 | M 16 x 55 | 931 | 10.9 | 1900 | 243 | 0,1658594 | 11 |

# 3071 Half/Split (Standard-Range)

| | | | | | | | | | | | HALF-D only | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | a mm | $l_1$ mm | A mm | B mm | $M_A$ Nm | Z Stk | $d_B$ mm | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
| **185** | 140 | 29500 | 330 | 40,5 | 5 | 48 | 236 | 195 | 250 | 10 | 17,5 | M 16 x 70 | 931 | 10.9 | 1700 | 227 | 0,3220312 | 18 |
| **195** | 150 | 39700 | 350 | 40,5 | 5 | 48 | 246 | 210 | 250 | 12 | 17,5 | M 16 x 70 | 931 | 10.9 | 1600 | 258 | 0,4013125 | 20 |
| **200** | 155 | 40800 | 350 | 40,5 | 5 | 48 | 246 | 210 | 250 | 12 | 17,5 | M 16 x 70 | 931 | 10.9 | 1600 | 252 | 0,3859375 | 19 |
| **220** | 165 | 51800 | 370 | 52 | 8 | 60 | 270 | 230 | 250 | 15 | 17,5 | M 16 x 80 | 931 | 10.9 | 1500 | 231 | 0,6022250 | 26 |
| **240** | 180 | 72400 | 405 | 54 | 8 | 62,5 | 295 | 248 | 490 | 12 | 22 | M 20 x 90 | 931 | 10.9 | 1400 | 254 | 0,8865000 | 32 |
| **245** | 185 | 73900 | 410 | 55,5 | 8 | 63,5 | 298 | 251 | 490 | 12 | 22 | M 20 x 90 | 931 | 10.9 | 1300 | 241 | 0,9410156 | 33 |
| **260** | 190 | 85300 | 440 | 59,5 | 8 | 68 | 321 | 268 | 490 | 14 | 22 | M 20 x 90 | 931 | 10.9 | 1300 | 244 | 1,3713 | 42 |
| **280** | 210 | 112000 | 460 | 67 | 10 | 77 | 346 | 288 | 490 | 16 | 22 | M 20 x 100 | 931 | 10.9 | 1200 | 234 | 1,7762 | 49 |
| **300** | 230 | 143000 | 485 | 71 | 10 | 81 | 364 | 308 | 490 | 18 | 22 | M 20 x 100 | 931 | 10.9 | 1100 | 230 | 2,3172 | 57 |
| **320** | 240 | 163000 | 520 | 71 | 10 | 81 | 386 | 328 | 490 | 20 | 22 | M 20 x 100 | 931 | 10.9 | 1100 | 239 | 3,0756 | 66 |
| **340** | 250 | 163000 | 570 | 77 | 10 | 88 | 408 | 348 | 490 | 24 | 22 | M 20 x 110 | 931 | 10.9 | 1000 | 205 | 5,0658 | 92 |
| **350** | 270 | 228000 | 580 | 80 | 10 | 91 | 432 | 358 | 490 | 24 | 22 | M 20 x 110 | 931 | 10.9 | 980 | 229 | 5,5068 | 96 |
| **360** | 290 | 259000 | 590 | 80 | 10 | 91 | 432 | 368 | 490 | 24 | 22 | M 20 x 110 | 931 | 10.9 | 970 | 222 | 5,8518 | 98 |
| **380** | 300 | 317000 | 645 | 85 | 13 | 97 | 458 | 387 | 840 | 20 | 26 | M 24 x 120 | 931 | 10.9 | 880 | 245 | 8,8967 | 127 |
| **390** | 310 | 348000 | 660 | 85 | 13 | 97 | 468 | 397 | 840 | 21 | 26 | M 24 x 120 | 931 | 10.9 | 860 | 251 | 9,7705 | 133 |
| **400** | 320 | 361000 | 680 | 85 | 13 | 97 | 480 | 407 | 840 | 21 | 26 | M 24 x 120 | 931 | 10.9 | 840 | 245 | 11,05 | 142 |
| **420** | 340 | 445000 | 690 | 95 | 13 | 107 | 504 | 427 | 840 | 24 | 26 | M 24 x 130 | 931 | 10.9 | 830 | 234 | 12,97 | 159 |
| **440** | 350 | 445000 | 750 | 101,5 | 13 | 114 | 527 | 447 | 840 | 24 | 26 | M 24 x 140 | 931 | 10.9 | 760 | 207 | 19,56 | 207 |
| **460** | 370 | 478000 | 770 | 101,5 | 13 | 114 | 547 | 468 | 840 | 28 | 26 | M 24 x 140 | 931 | 10.9 | 740 | 198 | 21,52 | 214 |
| **480** | 390 | 599000 | 800 | 109 | 15 | 121,5 | 570 | 488 | 840 | 30 | 26 | M 24 x 150 | 931 | 10.9 | 710 | 208 | 26,44 | 243 |
| **500** | 410 | 715000 | 850 | 109 | 15 | 121,5 | 590 | 508 | 1250 | 24 | 30 | M 27 x 150 | 931 | 10.9 | 670 | 225 | 34,04 | 280 |
| **530** | 440 | 980000 | 900 | 122,5 | 15 | 135 | 620 | 538 | 1250 | 30 | 30 | M 27 x 170 | 931 | 10.9 | 630 | 232 | 46,77 | 343 |
| **560** | 460 | 1082000 | 950 | 122,5 | 15 | 135 | 650 | 568 | 1250 | 32 | 30 | M 27 x 170 | 931 | 10.9 | 600 | 234 | 58,07 | 382 |
| **590** | 480 | 1257000 | 980 | 132,5 | 15 | 147,5 | 685 | 600 | 1250 | 36 | 30 | M 27 x 180 | 931 | 10.9 | 580 | 229 | 71,15 | 435 |
| **620** | 510 | 1428000 | 1020 | 132,5 | 15 | 147,5 | 715 | 630 | 1250 | 38 | 30 | M 27 x 180 | 931 | 10.9 | 560 | 230 | 82,99 | 466 |
| **660** | 540 | 1838000 | 1100 | 145 | 15 | 160 | 760 | 670 | 1700 | 38 | 33 | M 30 x 200 | 931 | 10.9 | 520 | 238 | 123 | 598 |
| **700** | 580 | 2116000 | 1200 | 145 | 15 | 160 | 800 | 710 | 1700 | 40 | 33 | M 30 x 200 | 931 | 10.9 | 470 | 236 | 177 | 733 |
| **720** | 600 | 2319000 | 1230 | 145 | 15 | 160 | 820 | 730 | 1700 | 42 | 33 | M 30 x 200 | 931 | 10.9 | 460 | 241 | 195 | 767 |
| **750** | 620 | 2483000 | 1230 | 155 | 15 | 172,5 | 855 | 762 | 1700 | 44 | 33 | M 30 x 220 | 931 | 10.9 | 460 | 225 | 210 | 810 |
| **800** | 660 | 2750000 | 1310 | 155 | 15 | 172,5 | 905 | 812 | 1700 | 46 | 33 | M 30 x 220 | 931 | 10.9 | 430 | 220 | 270 | 917 |
| **850** | 700 | 3161000 | 1330 | 170 | 15 | 187,5 | 965 | 862 | 1700 | 50 | 33 | M 30 x 230 | 931 | 10.9 | 430 | 204 | 302 | 969 |
| **900** | 740 | 3475000 | 1400 | 170 | 15 | 187,5 | 1015 | 912 | 1700 | 52 | 33 | M 30 x 230 | 931 | 10.9 | 400 | 200 | 369 | 1065 |
| **950** | 780 | 4210000 | 1550 | 185 | 15 | 205 | 1075 | 962 | 2800 | 42 | 39 | M 36 x 250 | 931 | 10.9 | 370 | 199 | 643 | 1556 |
| **1000** | 820 | 5281000 | 1620 | 185 | 15 | 205 | 1125 | 1012 | 2800 | 50 | 39 | M 36 x 250 | 931 | 10.9 | 350 | 225 | 763 | 1685 |

# 3081 Standard-Range (strengthened)



## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the shrink disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

Dimensions H & e in unlocked position

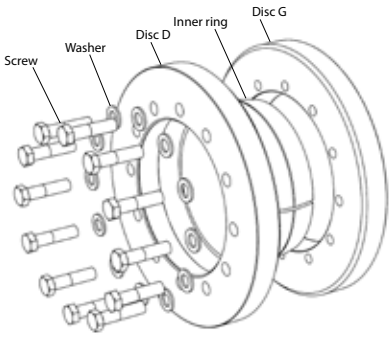
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 10 | 30 | -1 | 1 |
| 30 | 50 | -3 | 2 |
| 50 | 140 | -5 | 5 |
| 140 | 180 | -10 | 5 |
| 180 | 320 | -15 | 10 |
| 320 | 500 | -20 | 10 |
| 500 | 700 | -30 | 20 |
| 700 | 820 | -40 | 20 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

*(see Basics - Calculation)*




| min. yield strength Rp0,2 | N/mm² |
|---|---|
| Solid shaft | 350 |
| Hub | 450 |

**Ordering information: TAS 3081 - d** (z.B.: TAS 3081-200 ... (further sizes on request)
**with Inbus: TAS 3081 - d - Inbus** (z.B.: TAS 3081-200-Inbus)

# 3081 Standard-Range (strengthened)

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **14** | 11 | 48 | 37 | 9 | 1,5 | 12 | 24 | 15 | 4 | 3 | M 4 x 10 | 933 | 12.9 | 15400 | 344 | 0,0000137 | 0,07 |
| **30** | 25 | 520 | 60 | 16 | 2,75 | 21,5 | 44 | 32 | 8 | 6 | M 5 x 18 | 931 | 12.9 | 9500 | 300 | 0,0001687 | 0,30 |
| **36** | 30 | 780 | 72 | 18 | 2,75 | 23,5 | 52 | 38 | 14 | 5 | M 6 x 20 | 933 | 12.9 | 7900 | 271 | 0,0003888 | 0,48 |
| **38** | 31 | 1100 | 80 | 20 | 3 | 26 | 56 | 41 | 14 | 7 | M 6 x 20 | 933 | 12.9 | 7100 | 324 | 0,0006569 | 0,67 |
| **40** | 32 | 910 | 75 | 19 | 2,75 | 24,5 | 57 | 43 | 14 | 6 | M 6 x 20 | 933 | 12.9 | 7600 | 277 | 0,0004967 | 0,55 |
| **50** | 40 | 1500 | 90 | 22 | 3 | 28 | 70 | 53 | 14 | 8 | M 6 x 25 | 933 | 12.9 | 6300 | 255 | 0,0010998 | 0,83 |
| **55** | 45 | 1800 | 100 | 23 | 3,75 | 30,5 | 75 | 58 | 14 | 8 | M 6 x 25 | 933 | 12.9 | 5700 | 222 | 0,0017909 | 1,1 |
| **62** | 50 | 2600 | 110 | 23 | 3,75 | 30,5 | 86 | 66 | 14 | 10 | M 6 x 25 | 933 | 12.9 | 5200 | 246 | 0,0025909 | 1,3 |
| **68** | 55 | 2700 | 115 | 23 | 3,75 | 30,5 | 86 | 72 | 14 | 10 | M 6 x 25 | 933 | 12.9 | 4900 | 225 | 0,0031236 | 1,4 |
| **75** | 60 | 4400 | 138 | 25 | 3,75 | 32,5 | 100 | 79 | 35 | 7 | M 8 x 30 | 933 | 12.9 | 4100 | 272 | 0,0070923 | 2,3 |
| **80** | 65 | 4900 | 145 | 25 | 3,75 | 32,5 | 100 | 84 | 35 | 7 | M 8 x 30 | 933 | 12.9 | 3900 | 255 | 0,0085703 | 2,5 |
| **90** | 70 | 7200 | 155 | 30 | 4,5 | 39 | 114 | 94 | 35 | 10 | M 8 x 35 | 931 | 12.9 | 3600 | 269 | 0,0132516 | 3,3 |
| **100** | 75 | 8800 | 170 | 34 | 5 | 44 | 124 | 104 | 35 | 12 | M 8 x 35 | 931 | 12.9 | 3300 | 257 | 0,0213950 | 4,4 |
| **110** | 80 | 10800 | 185 | 39 | 5,5 | 50 | 136 | 114 | 69 | 9 | M 10 x 40 | 931 | 12.9 | 3000 | 243 | 0,0347437 | 6,0 |
| **115** | 80 | 11400 | 200 | 40 | 5 | 50 | 150 | 124 | 69 | 10 | M 10 x 40 | 931 | 12.9 | 2800 | 252 | 0,0485678 | 7,3 |
| **120** | 85 | 11700 | 200 | 40 | 5 | 50 | 150 | 124 | 69 | 10 | M 10 x 40 | 931 | 12.9 | 2800 | 241 | 0,0476000 | 7,0 |
| **125** | 90 | 15900 | 215 | 42 | 6 | 54 | 160 | 134 | 69 | 12 | M 10 x 40 | 931 | 12.9 | 2600 | 265 | 0,0672619 | 8,7 |
| **140** | 100 | 21700 | 230 | 46 | 7,25 | 60,5 | 175 | 146 | 120 | 10 | M 12 x 50 | 931 | 12.9 | 2400 | 263 | 0,0996875 | 11 |
| **155** | 110 | 28900 | 265 | 50 | 7,25 | 64,5 | 192 | 165 | 120 | 12 | M 12 x 50 | 931 | 12.9 | 2100 | 262 | 0,1885000 | 16 |
| **165** | 120 | 46400 | 290 | 56 | 7,5 | 71 | 210 | 175 | 290 | 8 | M 16 x 55 | 931 | 12.9 | 1900 | 303 | 0,3061438 | 22 |
| **175** | 130 | 51200 | 300 | 56 | 7,5 | 71 | 220 | 185 | 290 | 8 | M 16 x 55 | 931 | 12.9 | 1900 | 286 | 0,3467969 | 23 |
| **185** | 140 | 70700 | 330 | 71 | 7,5 | 86 | 236 | 195 | 290 | 10 | M 16 x 70 | 931 | 12.9 | 1700 | 266 | 0,6261719 | 35 |
| **195** | 150 | 94900 | 350 | 71 | 7,5 | 86 | 246 | 210 | 290 | 12 | M 16 x 70 | 931 | 12.9 | 1600 | 303 | 0,8026250 | 40 |
| **200** | 155 | 97700 | 350 | 71 | 7,5 | 86 | 246 | 210 | 290 | 12 | M 16 x 70 | 931 | 12.9 | 1600 | 296 | 0,7921875 | 39 |
| **220** | 165 | 124000 | 370 | 88 | 8 | 104 | 270 | 230 | 290 | 15 | M 16 x 80 | 931 | 12.9 | 1500 | 271 | 1,1813 | 51 |
| **240** | 180 | 171000 | 405 | 92 | 8,5 | 109 | 295 | 248 | 570 | 12 | M 20 x 80 | 931 | 12.9 | 1400 | 296 | 1,7730 | 64 |
| **245** | 185 | 175000 | 410 | 95 | 8 | 111 | 298 | 251 | 570 | 12 | M 20 x 80 | 931 | 12.9 | 1300 | 281 | 1,9105 | 67 |
| **260** | 190 | 203000 | 440 | 103 | 8,5 | 120 | 321 | 268 | 570 | 14 | M 20 x 90 | 931 | 12.9 | 1300 | 285 | 2,7426 | 84 |
| **280** | 210 | 266000 | 460 | 114 | 10 | 134 | 346 | 288 | 570 | 16 | M 20 x 100 | 931 | 12.9 | 1200 | 273 | 3,5888 | 99 |
| **300** | 230 | 340000 | 485 | 122 | 10 | 142 | 364 | 308 | 570 | 18 | M 20 x 100 | 931 | 12.9 | 1100 | 268 | 4,6751 | 115 |
| **320** | 240 | 386000 | 520 | 122 | 10 | 142 | 386 | 328 | 570 | 20 | M 20 x 100 | 931 | 12.9 | 1100 | 279 | 6,1978 | 133 |
| **340** | 250 | 474000 | 570 | 134 | 11 | 156 | 408 | 348 | 570 | 24 | M 20 x 110 | 931 | 12.9 | 1000 | 287 | 10,08 | 183 |
| **350** | 270 | 539000 | 580 | 140 | 11 | 162 | 432 | 358 | 570 | 24 | M 20 x 110 | 931 | 12.9 | 980 | 267 | 11,07 | 193 |
| **360** | 290 | 613000 | 590 | 140 | 11 | 162 | 432 | 368 | 570 | 24 | M 20 x 110 | 931 | 12.9 | 970 | 259 | 11,76 | 197 |
| **380** | 300 | 750000 | 645 | 144 | 12 | 168 | 458 | 387 | 980 | 20 | M 24 x 120 | 931 | 12.9 | 880 | 287 | 17,86 | 255 |
| **390** | 310 | 824000 | 660 | 144 | 12 | 168 | 468 | 397 | 980 | 21 | M 24 x 120 | 931 | 12.9 | 860 | 294 | 19,54 | 266 |
| **400** | 320 | 853000 | 680 | 144 | 12 | 168 | 480 | 407 | 980 | 21 | M 24 x 120 | 931 | 12.9 | 840 | 286 | 22,10 | 284 |
| **420** | 340 | 1052000 | 690 | 164 | 12 | 188 | 504 | 427 | 980 | 24 | M 24 x 130 | 931 | 12.9 | 830 | 274 | 25,94 | 318 |
| **440** | 350 | 1054000 | 750 | 177 | 12,5 | 202 | 527 | 447 | 980 | 24 | M 24 x 140 | 931 | 12.9 | 760 | 242 | 39,13 | 414 |
| **460** | 370 | 1331000 | 770 | 177 | 12,5 | 202 | 547 | 468 | 980 | 28 | M 24 x 140 | 931 | 12.9 | 740 | 270 | 43,04 | 428 |
| **480** | 390 | 1523000 | 800 | 188 | 12,5 | 213 | 570 | 488 | 980 | 30 | M 24 x 140 | 931 | 12.9 | 710 | 261 | 52,77 | 485 |
| **500** | 410 | 1691000 | 850 | 188 | 12,5 | 213 | 590 | 508 | 1450 | 24 | M 27 x 150 | 931 | 12.9 | 670 | 263 | 68,08 | 560 |
| **530** | 440 | 2314000 | 900 | 215 | 12,5 | 240 | 620 | 538 | 1450 | 30 | M 27 x 180 | 931 | 12.9 | 630 | 272 | 93,54 | 686 |
| **560** | 460 | 2554000 | 950 | 215 | 12,5 | 240 | 650 | 568 | 1450 | 32 | M 27 x 180 | 931 | 12.9 | 600 | 274 | 116 | 763 |
| **590** | 480 | 2967000 | 980 | 235 | 15 | 265 | 685 | 600 | 1450 | 36 | M 27 x 180 | 931 | 12.9 | 580 | 268 | 142 | 869 |
| **620** | 510 | 3370000 | 1020 | 235 | 15 | 265 | 715 | 630 | 1450 | 38 | M 27 x 180 | 931 | 12.9 | 560 | 269 | 166 | 931 |

# 3081 Standard-Range (strengthened)

| d<br>mm | $d_W$<br>mm | $M_{max}$<br>Nm | D<br>mm | l<br>mm | e<br>mm | H<br>mm | A<br>mm | B<br>mm | $M_A$<br>Nm | Z<br>Stk | S | DIN | Class | $n_{max}$<br>$min^{-1}$ | $p_N$<br>$N/mm^2$ | I<br>$kgm^2$ | Weight<br>kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **660** | 540 | 4329000 | 1100 | 260 | 15 | 290 | 760 | 670 | 1950 | 38 | M 30 x 200 | 931 | 12.9 | 520 | 278 | 246 | 1195 |
| **700** | 580 | 4980000 | 1200 | 260 | 15 | 290 | 800 | 710 | 1950 | 40 | M 30 x 200 | 931 | 12.9 | 470 | 276 | 354 | 1466 |
| **720** | 600 | 5456000 | 1230 | 260 | 15 | 290 | 820 | 730 | 1950 | 42 | M 30 x 200 | 931 | 12.9 | 460 | 282 | 390 | 1535 |
| **750** | 620 | 5844000 | 1230 | 280 | 17,5 | 315 | 855 | 762 | 1950 | 44 | M 30 x 220 | 931 | 12.9 | 460 | 263 | 420 | 1619 |
| **800** | 660 | 6475000 | 1310 | 280 | 17,5 | 315 | 905 | 812 | 1950 | 46 | M 30 x 220 | 931 | 12.9 | 430 | 258 | 540 | 1833 |
| **850** | 700 | 7443000 | 1330 | 310 | 17,5 | 345 | 965 | 862 | 1950 | 50 | M 30 x 250 | 931 | 12.9 | 430 | 238 | 604 | 1938 |
| **900** | 740 | 8180000 | 1400 | 310 | 17,5 | 345 | 1015 | 912 | 1950 | 52 | M 30 x 250 | 931 | 12.9 | 400 | 234 | 738 | 2130 |
| **950** | 780 | 10005000 | 1550 | 340 | 20 | 380 | 1075 | 962 | 3300 | 42 | M 36 x 260 | 931 | 12.9 | 370 | 234 | 1285 | 3111 |
| **1000** | 820 | 12541000 | 1620 | 340 | 20 | 380 | 1125 | 1012 | 3300 | 50 | M 36 x 260 | 931 | 12.9 | 350 | 265 | 1526 | 3369 |

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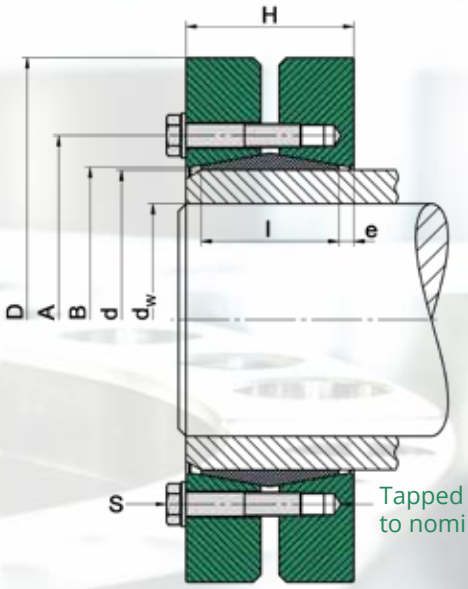
# 3091 Heavy-Range




Tapped through holes up to nominal diameter 140

## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

Dimensions H & e in unlocked position

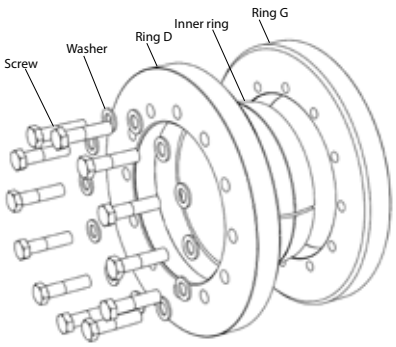
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 40 | 50 | -3 | 2 |
| 50 | 140 | -5 | 5 |
| 140 | 180 | -10 | 5 |
| 180 | 320 | -15 | 10 |
| 320 | 440 | -20 | 10 |
| 440 | 600 | -30 | 10 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

*(see Basics - Calculation)*



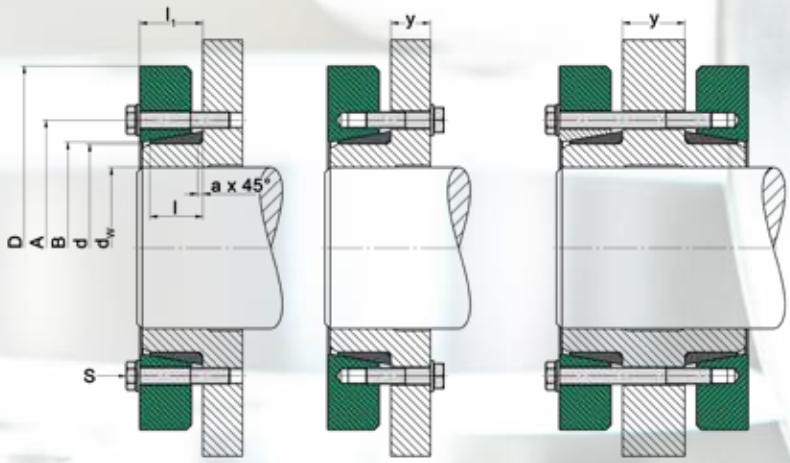

| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

**Ordering information:** **TAS 3091 - d** (e.g.: TAS 3091-200 ... (Further sizes on request))
**with Inbus: TAS 3091 - d - Inbus** (e.g.: TAS 3091-200-Inbus)

# 3091 Heavy-Range

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **40** | 30 | 890 | 80 | 25 | 3,5 | 32 | 62 | 43 | 30 | 4 | M 8 x 30 | 933 | 10.9 | 7100 | 249 | 0,0008300 | 0,83 |
| **44** | 34 | 1300 | 85 | 28 | 3 | 34 | 66 | 47 | 30 | 5 | M 8 x 30 | 933 | 10.9 | 6700 | 253 | 0,0011451 | 1,0 |
| **50** | 40 | 2500 | 95 | 30 | 4,5 | 39 | 73 | 54 | 30 | 7 | M 8 x 35 | 933 | 10.9 | 6000 | 291 | 0,0020169 | 1,4 |
| **55** | 45 | 2900 | 105 | 30 | 4,5 | 39 | 78 | 59 | 30 | 7 | M 8 x 35 | 933 | 10.9 | 5400 | 264 | 0,0029856 | 1,7 |
| **62** | 50 | 3200 | 115 | 30 | 4,5 | 39 | 85 | 66 | 30 | 7 | M 8 x 35 | 933 | 10.9 | 4900 | 235 | 0,0042672 | 2,0 |
| **68** | 55 | 3900 | 120 | 30 | 4,5 | 39 | 92 | 72 | 30 | 8 | M 8 x 35 | 933 | 10.9 | 4700 | 244 | 0,0049938 | 2,1 |
| **75** | 60 | 5900 | 145 | 36 | 5 | 46 | 105 | 84 | 59 | 7 | M 10 x 40 | 933 | 10.9 | 4100 | 257 | 0,0101760 | 3,3 |
| **80** | 65 | 6600 | 145 | 36 | 5 | 46 | 105 | 84 | 59 | 7 | M 10 x 40 | 933 | 10.9 | 3900 | 241 | 0,0123412 | 3,6 |
| **90** | 70 | 7600 | 160 | 40 | 5 | 50 | 116 | 94 | 59 | 8 | M 10 x 40 | 933 | 10.9 | 3500 | 220 | 0,0202200 | 4,8 |
| **100** | 75 | 9800 | 170 | 44 | 5 | 54 | 126 | 104 | 59 | 10 | M 10 x 45 | 931 | 10.9 | 3300 | 225 | 0,0262575 | 5,4 |
| **110** | 80 | 12000 | 185 | 50 | 5 | 60 | 138 | 114 | 59 | 12 | M 10 x 45 | 931 | 10.9 | 3000 | 216 | 0,0411134 | 7,1 |
| **120** | 85 | 14300 | 210 | 55 | 5 | 65 | 155 | 125 | 100 | 10 | M 12 x 50 | 931 | 10.9 | 2700 | 219 | 0,0731250 | 10 |
| **125** | 90 | 15600 | 215 | 55 | 5 | 65 | 160 | 129 | 100 | 10 | M 12 x 50 | 931 | 10.9 | 2600 | 210 | 0,0850438 | 11 |
| **140** | 100 | 21000 | 230 | 60 | 7 | 74 | 175 | 144 | 100 | 12 | M 12 x 55 | 931 | 10.9 | 2400 | 207 | 0,1178125 | 13 |
| **155** | 110 | 29500 | 265 | 66 | 7 | 80 | 198 | 164 | 100 | 15 | M 12 x 60 | 931 | 10.9 | 2100 | 212 | 0,2356250 | 20 |
| **165** | 120 | 48100 | 290 | 72 | 8 | 88 | 210 | 174 | 250 | 10 | M 16 x 70 | 931 | 10.9 | 1900 | 251 | 0,3757219 | 27 |
| **175** | 130 | 53100 | 300 | 72 | 8 | 88 | 220 | 184 | 250 | 10 | M 16 x 70 | 931 | 10.9 | 1900 | 237 | 0,4221875 | 28 |
| **185** | 140 | 83500 | 330 | 92 | 10 | 112 | 236 | 194 | 250 | 14 | M 16 x 80 | 931 | 10.9 | 1700 | 245 | 0,8229688 | 46 |
| **200** | 150 | 95400 | 350 | 92 | 10 | 112 | 246 | 204 | 250 | 15 | M 16 x 80 | 931 | 10.9 | 1600 | 243 | 1,0359000 | 51 |
| **220** | 165 | 138000 | 370 | 114 | 10 | 134 | 270 | 224 | 250 | 20 | M 16 x 90 | 931 | 10.9 | 1500 | 238 | 1,5287 | 66 |
| **240** | 180 | 180000 | 405 | 120 | 12 | 144 | 295 | 244 | 490 | 15 | M 20 x 100 | 931 | 10.9 | 1400 | 243 | 2,3548 | 85 |
| **260** | 200 | 247000 | 430 | 136 | 12 | 160 | 321 | 265 | 490 | 18 | M 20 x 110 | 931 | 10.9 | 1300 | 238 | 3,2825 | 104 |
| **280** | 220 | 330000 | 460 | 148 | 12 | 172 | 346 | 285 | 490 | 21 | M 20 x 120 | 931 | 10.9 | 1200 | 237 | 4,6400 | 128 |
| **300** | 240 | 388000 | 485 | 152 | 12 | 176 | 364 | 305 | 490 | 22 | M 20 x 120 | 931 | 10.9 | 1100 | 225 | 5,8134 | 143 |
| **320** | 250 | 428000 | 520 | 160 | 12 | 184 | 386 | 325 | 490 | 24 | M 20 x 130 | 931 | 10.9 | 1100 | 219 | 7,9220 | 170 |
| **340** | 260 | 546000 | 570 | 176 | 12 | 200 | 420 | 345 | 840 | 21 | M 24 x 130 | 931 | 10.9 | 1000 | 236 | 13,10 | 238 |
| **350** | 280 | 626000 | 580 | 176 | 12 | 200 | 425 | 355 | 840 | 21 | M 24 x 130 | 931 | 10.9 | 980 | 229 | 13,94 | 243 |
| **360** | 290 | 687000 | 590 | 180 | 12 | 204 | 432 | 365 | 840 | 22 | M 24 x 140 | 931 | 10.9 | 970 | 228 | 14,81 | 248 |
| **380** | 305 | 719000 | 645 | 180 | 12 | 204 | 458 | 387 | 840 | 22 | M 24 x 140 | 931 | 10.9 | 880 | 216 | 21,65 | 309 |
| **390** | 310 | 789000 | 660 | 188 | 12 | 212 | 468 | 397 | 840 | 24 | M 24 x 140 | 931 | 10.9 | 860 | 220 | 24,68 | 336 |
| **400** | 320 | 817000 | 680 | 188 | 12 | 212 | 480 | 407 | 840 | 24 | M 24 x 140 | 931 | 10.9 | 840 | 214 | 27,85 | 358 |
| **420** | 340 | 1110000 | 690 | 214 | 12 | 238 | 504 | 427 | 840 | 30 | M 24 x 150 | 931 | 10.9 | 830 | 224 | 33,52 | 411 |
| **440** | 350 | 1173000 | 750 | 224 | 14 | 252 | 527 | 448 | 1250 | 24 | M 27 x 170 | 931 | 10.9 | 760 | 215 | 49,52 | 524 |
| **460** | 370 | 1483000 | 770 | 224 | 14 | 252 | 547 | 468 | 1250 | 28 | M 27 x 170 | 931 | 10.9 | 740 | 240 | 54,40 | 541 |
| **480** | 390 | 1694000 | 800 | 246 | 14 | 274 | 580 | 488 | 1250 | 30 | M 27 x 180 | 931 | 10.9 | 710 | 224 | 70,39 | 647 |
| **500** | 410 | 1910000 | 850 | 246 | 14 | 274 | 600 | 508 | 1250 | 32 | M 27 x 180 | 931 | 10.9 | 670 | 229 | 90,81 | 747 |
| **530** | 440 | 2207000 | 910 | 275 | 14 | 303 | 630 | 538 | 1250 | 34 | M 27 x 200 | 931 | 10.9 | 630 | 206 | 130 | 939 |
| **660** | 540 | 4116000 | 1070 | 310 | 15 | 340 | 780 | 670 | 2800 | 30 | M 36 x 240 | 931 | 10.9 | 530 | 224 | 263 | 1331 |

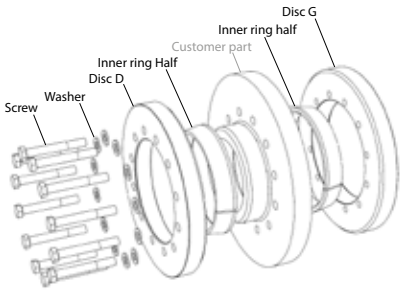
# 3091 Half/Split (Heavy-range)



HALF-D HALF-G SPLIT

## Used symbols

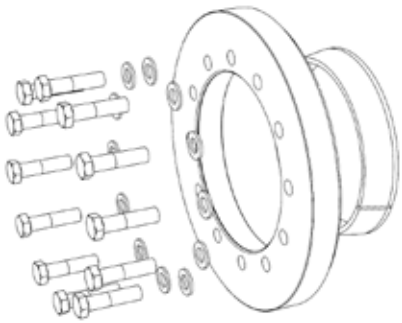
| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| I | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |




## Design of the disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

| min. yield strength Rp0,2 | N/mm² |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |



Dimensions H & e in unlocked position

Deviation from the standard shaft diameter $d_W$ see the table „**3091 Standard-Range**“ and „**Calculation of transmissible torques and forces**“

*Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus). (See ordering information)*

**For Typ in ordering information:**
- GET means SPLIT
- HALB means HALF

**Ordering information: TAS 3091Typ - d - y** (e.g.: TAS 3091GET-200-Y60 oder TAS 3091HALB-G-200-Y30 oder TAS 3091HALB-D-200)
**with Inbus: TAS 3091Typ - d - y - Inbus** (e.g.: TAS 3091GET-200-Y60-Inbus e.t.c.)

# 3091 Half/Split (Heavy-range)

## Please note:

All values refer to shrink disk design **HALF!**
Please provide us the dimension of „y“ or the length of screws. Otherwise we can not provide appropriate screws! (see ordering information)

Applies to shrink disc design HALF-G:

- The required screw length is: Screw length **(3091 Heavy-Range)** - $l_1$ + 2 a + y (rounded up to standard lengths)

Applies to shrink disc design SPLIT:

- The design consists of **1x HALF-D + 1x HALF-G**
- Delivery is possible with or without screws
- Maximum transmittable torque: $\mathbf{M_{ges} = 2\ M_{max}}$
- The required screw length: Screw length **(3091 Heavy-Range)** + 2 a + y (rounded up to standard lengths)

| | | | | | | | | | | | HALF-D only | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *d* mm | $d_W$ mm | $M_{max}$ Nm | *D* mm | *l* mm | *a* mm | $l_1$ mm | *A* mm | *B* mm | $M_A$ Nm | *Z* Stk | $d_B$ mm | *S* | *DIN* | *Class* | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | *I* $kgm^2$ | *Weight* kg |
| **40** | 30 | 440 | 80 | 14,5 | 2 | 18 | 62 | 43 | 30 | 4 | 9 | M 8 x 30 | 933 | 10.9 | 7100 | 249 | 0,0004100 | 0,41 |
| **44** | 34 | 670 | 85 | 16 | 2 | 19 | 66 | 47 | 30 | 5 | 9 | M 8 x 30 | 933 | 10.9 | 6700 | 253 | 0,0005611 | 0,49 |
| **50** | 40 | 960 | 95 | 17 | 2 | 21,5 | 73 | 54 | 30 | 7 | 9 | M 8 x 35 | 933 | 10.9 | 6000 | 233 | 0,0009796 | 0,68 |
| **55** | 45 | 1300 | 105 | 17,5 | 2,5 | 22 | 78 | 59 | 30 | 7 | 9 | M 8 x 35 | 933 | 10.9 | 5400 | 238 | 0,0014752 | 0,84 |
| **62** | 50 | 1600 | 115 | 17,5 | 2,5 | 22 | 85 | 66 | 30 | 7 | 9 | M 8 x 35 | 933 | 10.9 | 4900 | 235 | 0,0021336 | 1,0 |
| **68** | 55 | 1900 | 120 | 17,5 | 2,5 | 22 | 92 | 72 | 30 | 8 | 9 | M 8 x 35 | 933 | 10.9 | 4700 | 244 | 0,0023780 | 1,0 |
| **75** | 60 | 2900 | 145 | 22 | 4 | 27 | 105 | 84 | 59 | 7 | 11 | M 10 x 40 | 933 | 10.9 | 4100 | 257 | 0,0052422 | 1,7 |
| **80** | 65 | 3300 | 145 | 22 | 4 | 27 | 105 | 84 | 59 | 7 | 11 | M 10 x 40 | 933 | 10.9 | 3900 | 241 | 0,0061706 | 1,8 |
| **90** | 70 | 3800 | 160 | 25 | 4 | 30 | 116 | 94 | 59 | 8 | 11 | M 10 x 40 | 933 | 10.9 | 3500 | 220 | 0,0101100 | 2,4 |
| **100** | 75 | 4900 | 170 | 27 | 4 | 32 | 126 | 104 | 59 | 10 | 11 | M 10 x 45 | 931 | 10.9 | 3300 | 225 | 0,0131288 | 2,7 |
| **110** | 80 | 6000 | 185 | 30 | 5 | 35 | 138 | 114 | 59 | 12 | 11 | M 10 x 45 | 931 | 10.9 | 3000 | 216 | 0,0208462 | 3,6 |
| **120** | 85 | 7100 | 210 | 32,5 | 5 | 37,5 | 155 | 125 | 100 | 10 | 13,5 | M 12 x 50 | 931 | 10.9 | 2700 | 219 | 0,0372938 | 5,1 |
| **125** | 90 | 7800 | 215 | 32,5 | 5 | 37,5 | 160 | 129 | 100 | 10 | 13,5 | M 12 x 50 | 931 | 10.9 | 2600 | 210 | 0,0409756 | 5,3 |
| **140** | 100 | 10500 | 230 | 35 | 5 | 42 | 175 | 144 | 100 | 12 | 13,5 | M 12 x 55 | 931 | 10.9 | 2400 | 207 | 0,0598125 | 6,6 |
| **155** | 110 | 14700 | 265 | 38 | 5 | 45 | 198 | 164 | 100 | 15 | 13,5 | M 12 x 60 | 931 | 10.9 | 2100 | 212 | 0,1178125 | 10 |
| **165** | 120 | 24000 | 290 | 41 | 5 | 49 | 210 | 174 | 250 | 10 | 17,5 | M 16 x 70 | 931 | 10.9 | 1900 | 251 | 0,1809031 | 13 |
| **175** | 130 | 26500 | 300 | 41 | 5 | 49 | 220 | 184 | 250 | 10 | 17,5 | M 16 x 70 | 931 | 10.9 | 1900 | 237 | 0,2110938 | 14 |
| **185** | 140 | 41700 | 330 | 51 | 5 | 61 | 236 | 194 | 250 | 14 | 17,5 | M 16 x 80 | 931 | 10.9 | 1700 | 245 | 0,4114844 | 23 |
| **200** | 150 | 47700 | 350 | 51 | 5 | 61 | 246 | 204 | 250 | 15 | 17,5 | M 16 x 80 | 931 | 10.9 | 1600 | 243 | 0,5078125 | 25 |
| **220** | 165 | 69300 | 370 | 65 | 8 | 75 | 270 | 224 | 250 | 20 | 17,5 | M 16 x 90 | 931 | 10.9 | 1500 | 238 | 0,7643625 | 33 |
| **240** | 180 | 90100 | 405 | 68 | 8 | 80 | 295 | 244 | 490 | 15 | 22 | M 20 x 100 | 931 | 10.9 | 1400 | 243 | 1,1912 | 43 |
| **260** | 200 | 123000 | 430 | 76 | 8 | 88 | 321 | 265 | 490 | 18 | 22 | M 20 x 110 | 931 | 10.9 | 1300 | 238 | 1,6412 | 52 |
| **280** | 220 | 165000 | 460 | 84 | 10 | 96 | 346 | 285 | 490 | 21 | 22 | M 20 x 120 | 931 | 10.9 | 1200 | 237 | 2,3200 | 64 |
| **300** | 240 | 194000 | 485 | 86 | 10 | 98 | 364 | 305 | 490 | 22 | 22 | M 20 x 120 | 931 | 10.9 | 1100 | 225 | 2,9270 | 72 |
| **320** | 250 | 214000 | 520 | 90 | 10 | 102 | 386 | 325 | 490 | 24 | 22 | M 20 x 130 | 931 | 10.9 | 1100 | 219 | 3,9610 | 85 |
| **340** | 260 | 273000 | 570 | 98 | 10 | 110 | 420 | 345 | 840 | 21 | 26 | M 24 x 140 | 931 | 10.9 | 1000 | 236 | 6,5524 | 119 |
| **350** | 280 | 313000 | 580 | 98 | 10 | 110 | 425 | 355 | 840 | 21 | 26 | M 24 x 140 | 931 | 10.9 | 980 | 229 | 6,9409 | 121 |
| **360** | 290 | 343000 | 590 | 100 | 10 | 112 | 432 | 365 | 840 | 22 | 26 | M 24 x 140 | 931 | 10.9 | 970 | 228 | 7,4044 | 124 |
| **380** | 305 | 345000 | 645 | 103 | 13 | 115 | 458 | 387 | 840 | 22 | 26 | M 24 x 140 | 931 | 10.9 | 880 | 216 | 10,79 | 154 |
| **390** | 310 | 394000 | 660 | 107 | 13 | 119 | 468 | 397 | 840 | 24 | 26 | M 24 x 150 | 931 | 10.9 | 860 | 220 | 12,34 | 168 |

# 3091 Half/Split (Heavy-Range)

| | | | | | | | | | | | HALF-D only | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *d* mm | $d_W$ mm | $M_{max}$ Nm | *D* mm | *l* mm | *a* mm | $l_1$ mm | *A* mm | *B* mm | $M_A$ Nm | *Z* Stk | $d_B$ mm | *S* | *DIN* | *Class* | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | *I* $kgm^2$ | *Weight* kg |
| **400** | 320 | 408000 | 680 | 107 | 13 | 119 | 480 | 407 | 840 | 24 | 26 | M 24 x 150 | 931 | 10.9 | 840 | 214 | 13,93 | 179 |
| **420** | 340 | 555000 | 690 | 120 | 13 | 132 | 504 | 427 | 840 | 30 | 26 | M 24 x 160 | 931 | 10.9 | 830 | 224 | 16,72 | 205 |
| **440** | 350 | 586000 | 750 | 125 | 13 | 139 | 527 | 448 | 1250 | 24 | 30 | M 27 x 170 | 931 | 10.9 | 760 | 215 | 24,76 | 262 |
| **460** | 370 | 741000 | 770 | 125 | 13 | 139 | 547 | 468 | 1250 | 28 | 30 | M 27 x 170 | 931 | 10.9 | 740 | 240 | 27,25 | 271 |
| **480** | 390 | 847000 | 800 | 138 | 15 | 152 | 580 | 488 | 1250 | 30 | 30 | M 27 x 180 | 931 | 10.9 | 710 | 224 | 35,25 | 324 |
| **500** | 410 | 955000 | 850 | 138 | 15 | 152 | 600 | 508 | 1250 | 32 | 30 | M 27 x 180 | 931 | 10.9 | 670 | 229 | 45,34 | 373 |
| **530** | 440 | 1103000 | 910 | 152,5 | 15 | 166,5 | 630 | 538 | 1250 | 34 | 30 | M 27 x 200 | 931 | 10.9 | 630 | 206 | 65,15 | 470 |
| **660** | 540 | 2058000 | 1070 | 170 | 15 | 185 | 780 | 670 | 2800 | 30 | 39 | M 36 x 240 | 931 | 10.9 | 530 | 224 | 132 | 666 |

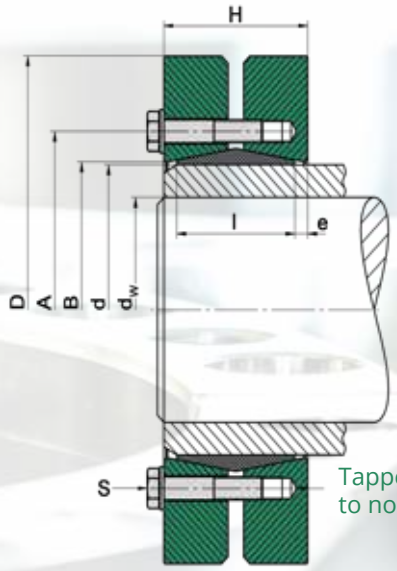
TAS SCHÄFER

made in GERMANY

# OUR QUALITY IS OUR STRENGTH.

WE WORK ON THIS EVERY DAY.

# 3093 Heavy-Range (strengthened)




Tapped through holes up to nominal diameter 140

## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

Dimensions H & e in unlocked position

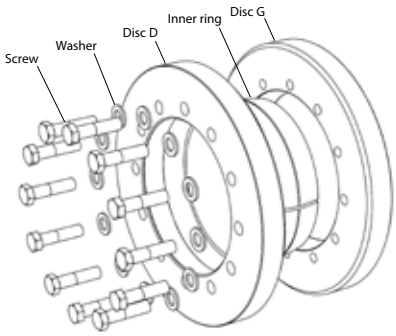
Hexagon head bolts are used as standard. Upon request we provide all sized shrink discs with hexagon socket head bolts (Inbus).
(See ordering information)

**Variation from the standard shaft diameter $d_W$**

| > mm | ≤ mm | minimal - mm | maximal + mm |
|---|---|---|---|
| 40 | 50 | -3 | 2 |
| 50 | 140 | -5 | 5 |
| 140 | 180 | -10 | 5 |
| 180 | 320 | -15 | 10 |
| 320 | 440 | -20 | 10 |
| 440 | 600 | -30 | 10 |

$$M = M_{max\,(Catalog)} \left(\frac{d_{W\,(target)}}{d_{W\,(Catalog)}}\right)^2$$

*(see Basics - Calculation)*



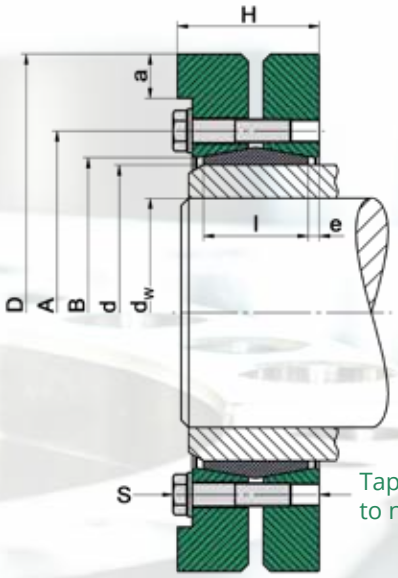

| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 350 |
| Hub | 450 |

**Ordering information**: **TAS 3093 - d** (e.g.: TAS 3093-200 ... further sizes on request)
**with Inbus: TAS 3093 - d - Inbus** (e.g.: TAS 3093-200-Inbus)

# 3093 Heavy-Range (strengthened)

| d mm | $d_W$ mm | $M_{max}$ Nm | D mm | l mm | e mm | H mm | A mm | B mm | $M_A$ Nm | Z Stk | S | DIN | Class | $n_{max}$ $min^{-1}$ | $p_N$ $N/mm^2$ | I $kgm^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **40** | 30 | 1000 | 80 | 25 | 3,5 | 32 | 62 | 43 | 35 | 4 | M 8 x 30 | 933 | 12.9 | 7100 | 291 | 0,0008300 | 0,83 |
| **44** | 34 | 1600 | 85 | 28 | 3 | 34 | 66 | 47 | 35 | 5 | M 8 x 30 | 933 | 12.9 | 6700 | 295 | 0,0011451 | 1,0 |
| **55** | 45 | 3500 | 105 | 30 | 4,5 | 39 | 78 | 59 | 35 | 7 | M 8 x 35 | 933 | 12.9 | 5400 | 309 | 0,0029856 | 1,7 |
| **62** | 50 | 3800 | 115 | 30 | 4,5 | 39 | 85 | 66 | 35 | 7 | M 8 x 35 | 933 | 12.9 | 4900 | 274 | 0,0042672 | 2,0 |
| **68** | 55 | 4700 | 120 | 30 | 4,5 | 39 | 92 | 72 | 35 | 8 | M 8 x 35 | 933 | 12.9 | 4700 | 285 | 0,0049938 | 2,1 |
| **75** | 60 | 7200 | 145 | 36 | 5 | 46 | 105 | 84 | 69 | 7 | M 10 x 40 | 933 | 12.9 | 4100 | 300 | 0,0101760 | 3,3 |
| **80** | 65 | 8000 | 145 | 36 | 5 | 46 | 105 | 84 | 69 | 7 | M 10 x 40 | 933 | 12.9 | 3900 | 282 | 0,0123412 | 3,6 |
| **90** | 70 | 9100 | 160 | 40 | 5 | 50 | 116 | 94 | 69 | 8 | M 10 x 40 | 933 | 12.9 | 3500 | 258 | 0,0202200 | 4,8 |
| **100** | 75 | 11800 | 170 | 44 | 5 | 54 | 126 | 104 | 69 | 10 | M 10 x 45 | 931 | 12.9 | 3300 | 263 | 0,0262575 | 5,4 |
| **110** | 80 | 14500 | 185 | 50 | 5 | 60 | 138 | 114 | 69 | 12 | M 10 x 45 | 931 | 12.9 | 3000 | 253 | 0,0411134 | 7,1 |
| **120** | 85 | 17500 | 210 | 55 | 5 | 65 | 155 | 125 | 120 | 10 | M 12 x 50 | 931 | 12.9 | 2700 | 257 | 0,0731250 | 10 |
| **125** | 90 | 19000 | 215 | 55 | 5 | 65 | 160 | 129 | 120 | 10 | M 12 x 50 | 931 | 12.9 | 2600 | 246 | 0,0850438 | 11 |
| **140** | 100 | 25600 | 230 | 60 | 7 | 74 | 175 | 144 | 120 | 12 | M 12 x 55 | 931 | 12.9 | 2400 | 242 | 0,1178125 | 13 |
| **155** | 110 | 35800 | 265 | 66 | 7 | 80 | 198 | 164 | 120 | 15 | M 12 x 60 | 931 | 12.9 | 2100 | 248 | 0,2356250 | 20 |
| **165** | 120 | 57800 | 290 | 72 | 8 | 88 | 210 | 174 | 290 | 10 | M 16 x 65 | 931 | 12.9 | 1900 | 295 | 0,3757219 | 27 |
| **175** | 130 | 63800 | 300 | 72 | 8 | 88 | 220 | 184 | 290 | 10 | M 16 x 65 | 931 | 12.9 | 1900 | 278 | 0,4221875 | 28 |
| **185** | 140 | 99900 | 330 | 92 | 10 | 112 | 236 | 194 | 290 | 14 | M 16 x 80 | 931 | 12.9 | 1700 | 288 | 0,8229688 | 46 |
| **200** | 150 | 114000 | 350 | 92 | 10 | 112 | 246 | 204 | 290 | 15 | M 16 x 80 | 931 | 12.9 | 1600 | 285 | 1,0359 | 51 |
| **220** | 165 | 166000 | 370 | 114 | 10 | 134 | 270 | 224 | 290 | 20 | M 16 x 90 | 931 | 12.9 | 1500 | 279 | 1,5287 | 66 |
| **240** | 180 | 213000 | 405 | 120 | 12 | 144 | 295 | 244 | 570 | 15 | M 20 x 100 | 931 | 12.9 | 1400 | 284 | 2,3548 | 85 |
| **260** | 200 | 294000 | 430 | 136 | 12 | 160 | 321 | 265 | 570 | 18 | M 20 x 110 | 931 | 12.9 | 1300 | 277 | 3,2825 | 104 |
| **280** | 220 | 390000 | 460 | 148 | 12 | 172 | 346 | 285 | 570 | 21 | M 20 x 120 | 931 | 12.9 | 1200 | 276 | 4,6400 | 128 |
| **300** | 240 | 458000 | 485 | 152 | 12 | 176 | 364 | 305 | 570 | 22 | M 20 x 120 | 931 | 12.9 | 1100 | 263 | 5,8100 | 143 |
| **320** | 250 | 506000 | 520 | 160 | 12 | 184 | 386 | 325 | 570 | 24 | M 20 x 130 | 931 | 12.9 | 1100 | 255 | 7,9200 | 170 |
| **340** | 260 | 648000 | 570 | 176 | 12 | 200 | 420 | 345 | 980 | 21 | M 24 x 130 | 931 | 12.9 | 1000 | 276 | 13,10 | 238 |
| **350** | 280 | 741000 | 580 | 176 | 12 | 200 | 425 | 355 | 980 | 21 | M 24 x 130 | 931 | 12.9 | 980 | 268 | 13,94 | 243 |
| **360** | 290 | 812000 | 590 | 180 | 12 | 204 | 432 | 365 | 980 | 22 | M 24 x 140 | 931 | 12.9 | 970 | 267 | 14,81 | 248 |
| **380** | 305 | 850000 | 645 | 180 | 12 | 204 | 458 | 387 | 980 | 22 | M 24 x 140 | 931 | 12.9 | 880 | 253 | 21,65 | 309 |
| **390** | 310 | 934000 | 660 | 188 | 12 | 212 | 468 | 397 | 980 | 24 | M 24 x 140 | 931 | 12.9 | 860 | 257 | 24,68 | 336 |
| **420** | 340 | 1312000 | 690 | 214 | 12 | 238 | 504 | 427 | 980 | 30 | M 24 x 150 | 931 | 12.9 | 830 | 262 | 33,52 | 411 |
| **440** | 350 | 1388000 | 750 | 224 | 14 | 252 | 527 | 448 | 1450 | 24 | M 27 x 170 | 931 | 12.9 | 760 | 251 | 49,52 | 524 |
| **460** | 370 | 1752000 | 770 | 224 | 14 | 252 | 547 | 468 | 1450 | 28 | M 27 x 170 | 931 | 12.9 | 740 | 280 | 54,40 | 541 |
| **480** | 390 | 2001000 | 800 | 246 | 14 | 274 | 580 | 488 | 1450 | 30 | M 27 x 180 | 931 | 12.9 | 710 | 262 | 70,39 | 647 |
| **500** | 410 | 2256000 | 850 | 246 | 14 | 274 | 600 | 508 | 1450 | 32 | M 27 x 180 | 931 | 12.9 | 670 | 268 | 90,81 | 747 |
| **530** | 440 | 2607000 | 910 | 275 | 14 | 303 | 630 | 538 | 1450 | 34 | M 27 x 200 | 931 | 12.9 | 630 | 241 | 130 | 939 |
| **660** | 540 | 4897000 | 1070 | 310 | 15 | 340 | 780 | 670 | 3300 | 30 | M 36 x 240 | 931 | 12.9 | 530 | 264 | 263 | 1331 |

# Typ 52 Shrink Discs matching Stiebel – helical-bevel gears




Tapped through holes up to nominal diameter 200

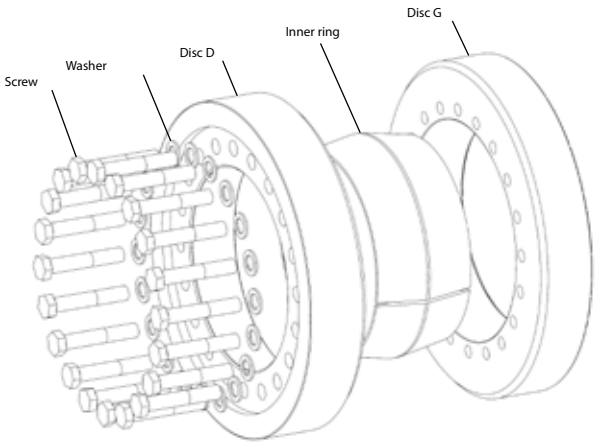
## Used symbols

| | | |
|---|---|---|
| d | [mm] | Nominal diameter of the shrink disc |
| $d_W$ | [mm] | Shaft diameter |
| $M_{max}$ | [Nm] | Maximal transmittable torque |
| D | [mm] | Outer diameter |
| l | [mm] | Length of the inner ring |
| e | [mm] | Excess length |
| H | [mm] | Width of the shrink disc |
| A | [mm] | Pitch circle diameter |
| B | [mm] | Shoulder diameter |
| $M_A$ | [Nm] | Tightening torque of the clamping screws |
| Z | | Number of clamping screws |
| S | | Size of the clamping screws |
| $n_{max}$ | [$min^{-1}$] | Permitted rotational frequency |
| $p_N$ | [$N/mm^2$] | Average pressure to the hub |
| I | [$kgm^2$] | Moment of inertia |

## Design of the disc

| | |
|---|---|
| d < 115 | Discs galvanized without washers |
| d ≥ 115 | Discs painted with washers |

Dimensions H & e in unlocked position




| min. yield strength Rp0,2 | $N/mm^2$ |
|---|---|
| Solid shaft | 290 |
| Hub | 350 |

**Order information: TAS Typ** (z.B.: TAS 5226 ... further sizes on request)



**TAS Schäfer GmbH** • Osterfeldstraße 75 • 58300 Wetter

# Typ 52 Shrink Discs matching Stiebel – helical-bevel gears

| Typ | $d$ mm | $d_W$ mm | $M_{max}$ Nm | $D$ mm | $l$ mm | $e$ mm | $H$ mm | $a$ mm | $A$ mm | $B$ mm | $M_A$ Nm | $Z$ Stk | $S$ | DIN | Class | $n_{max}$ min$^{-1}$ | $p_N$ N/mm$^2$ | $I$ kgm$^2$ | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **5206** | 50 | 40 | 1200 | 90 | 22 | 2,75 | 31,5 | 2 | 70 | 53 | 12 | 8 | M 6 x 25 | 931 | 10.9 | 6300 | 217 | 0,0010600 | 0,8 |
| **5208** | 62 | 50 | 2100 | 110 | 23 | 4,25 | 35,5 | 3 | 86 | 66 | 12 | 10 | M 6 x 25 | 931 | 10.9 | 5200 | 210 | 0,0025909 | 1,3 |
| **5210** | 75 | 60 | 3600 | 138 | 25 | 3,75 | 38 | 8 | 100 | 79 | 30 | 7 | M 8 x 30 | 931 | 10.9 | 4100 | 233 | 0,0070923 | 2,3 |
| **5212** | 88 | 70 | 6300 | 155 | 30 | 4,5 | 44,5 | 9,5 | 114 | 94 | 30 | 10 | M 8 x 35 | 931 | 10.9 | 3600 | 236 | 0,0135018 | 3,4 |
| **5214** | 90 | 75 | 7300 | 155 | 30 | 4,5 | 44,5 | 9,5 | 114 | 94 | 30 | 10 | M 8 x 35 | 931 | 10.9 | 3600 | 231 | 0,0132516 | 3,3 |
| **5216** | 110 | 85 | 10000 | 185 | 39 | 5,5 | 57 | 9,5 | 136 | 114 | 59 | 9 | M 10 x 40 | 931 | 10.9 | 3000 | 208 | 0,0347437 | 6,0 |
| **5218** | 138 | 100 | 18300 | 230 | 46 | 7,25 | 68,5 | 10 | 175 | 146 | 100 | 10 | M 12 x 45 | 931 | 10.9 | 2400 | 228 | 0,0989230 | 11 |
| **5220** | 155 | 120 | 30000 | 265 | 50 | 7,25 | 72,5 | 19 | 192 | 165 | 100 | 12 | M 12 x 50 | 931 | 10.9 | 2100 | 224 | 0,1885000 | 16 |
| **5222** | 165 | 120 | 38700 | 290 | 56 | 7,5 | 81 | 20 | 210 | 175 | 250 | 8 | M 16 x 55 | 931 | 10.9 | 1900 | 258 | 0,3061438 | 22 |
| **5224** | 175 | 135 | 58400 | 300 | 72 | 8 | 98 | 20 | 220 | 184 | 250 | 10 | M 16 x 65 | 931 | 10.9 | 1900 | 237 | 0,4221875 | 28 |
| **5226** | 200 | 150 | 95400 | 350 | 92 | 10 | 122 | 30 | 246 | 204 | 250 | 15 | M 16 x 80 | 931 | 10.9 | 1600 | 243 | 1,0359 | 51 |
| **5228** | 220 | 170 | 149000 | 370 | 114 | 10 | 144 | 27,5 | 270 | 224 | 250 | 20 | M 16 x 90 | 931 | 10.9 | 1500 | 238 | 1,5287 | 66 |

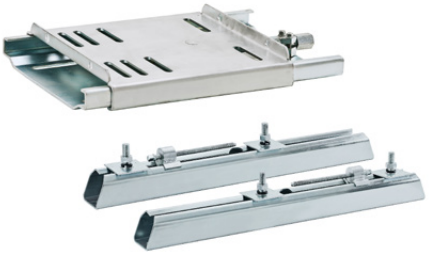
# PRODUCT OVERVIEW
EXCERPT

## Drive pulleys

V-belt pulleys | Flat belt pulleys | Flywheels | Grid pulleys | Timing belt pulleys | Rubberized pulleys
Split pulleys | Aluminium pulleys

## Supplies for drive belts

TaperLock clamping bushes | Motor mounting systems | V-belts / Drive belts | V-belt metrology | Rubber suspension units
Oscillating mountings | Tensioner devices | Foundation blocks | Shafts and rolls



**More information required?**

**www.luetgert-antriebe.de**

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